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EPA

Recycling Works!

State and Local Solutions to Solid Waste Management Problems

This booklet is printed on recycled paper.

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Recycling Works: An Overview

The average American produces more than 1,000 pounds of trash a year! As this proliferation of waste continues, places to dispose of it are dwindling. To avoid a crisis, everyone needs to accept responsibility for reducing the amount of garbage they throw away. However, it is often the job of state and local governments to deal with their citizens' trash.

Every state has at least one authority, agency, commission, or department responsible for managing the disposal of refuse generated by its citizens. Usually, local authorities handle collection and disposal, but private companies are also frequently utilized to manage trash.

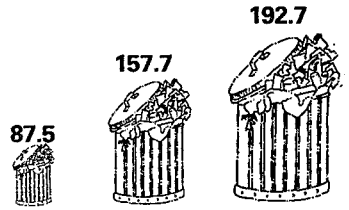
In some jurisdictions, trash appears to be a minor problem and is easily buried in a landfill. But for others, trash disposal has become a critical problem. Landfills are rapidly filling and closing. Incinerators are not able to safely handle enough of the trash that is produced. To cut down on the amount of trash needing disposal, many communities are turning to recycling and discovering that it works!

This booklet provides information about successful recycling programs initiated by state and local agencies. It also describes private recycling efforts and joint recycling ventures of government and businesses. Each success story is designed to provide basic information to help you as you consider various recycling options in your community.

A NATIONAL PROBLEM

As a nation, we are producing an ever-increasing amount of municipal trash. Referred to as the throwaway society, we produce almost twice as much solid waste as other developed countries. Our current rate of 160 million tons per year could fill a convoy of 10-ton trash trucks 145,000 miles long—enough to circle the equator nearly six times! To make matters worse, the amount of refuse generated in the United States is projected to increase about 20 percent by the year 2000.

Total United States Waste Disposal, in Millions of Tons

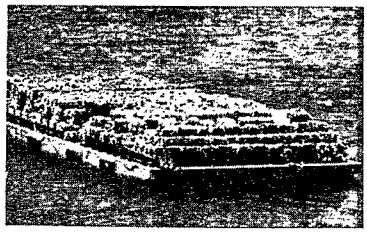


Currently, the most common form of waste management is disposal in landfills. We landfill 80 percent of our municipal waste. We incinerate 10 percent and recycle only another 10 percent. Yet landfills can no longer be relied upon as our main waste management alternative.

Landfills do not last forever. Many landfills are nearing or have already reached capacity; others are closing or have closed because they cannot operate within new safety standards. Furthermore, new landfill locations are very difficult to find.

The lack of landfill space and the growing volume of waste have created a waste management nightmare for some communities. Increased tipping fees and the need to transport waste to another county, another municipality, or even another state have caused costs to soar. Waste collection, transportation, and disposal costs have risen to over $100 a ton in some communities. Morris County, New Jersey, for instance, pays over $116 a ton to get its waste to a Pennsylvania site.

But does it make sense to landfill or burn all of our trash? A sizeable portion of what we throw away contains valuable resources—metals, glass, paper, wood, and plastic—that can be reprocessed and used again.



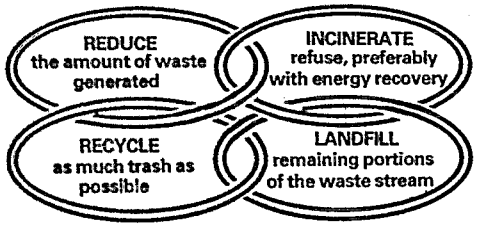
The garbage barge, Mobro, illustrated just how hard it can be to dispose of garbage. The Mobro traveled on a six-month odyssey of over 6,000 miles, including six states and three other countries, before it found a home—in New York, where it came from!

INTEGRATED WASTE MANAGEMENT

Many states and local governments are moving to prevent massive waste handling problems. Some are just beginning to evaluate the adequacy of their current waste management programs. Others are considering or implementing an integrated solid waste management approach. A number of agencies have recognized the value of including recycling as part of their solid waste management programs. In fact, about 8,000 recycling programs are working to reduce the volume of waste in the United States. Recycling can play a much larger role in waste management programs.

An Integrated Waste Mangement Solution

As state and local governments plan for and implement integrated waste management, they usually consider a hierarchy of methods: reduce, recycle, incinerate, and landfill. Reducing waste—preventing it from needing to be dealt with at all—is generally the most favored management tool. Recycling—next in order of preference—helps to divert wastes from landfills and incinerators and provides for the reuse of resources. Incinerating waste is next in the hierarchy. Incineration reduces volume and can recover energy, but may have some risks associated with it. Landfilling, while necessary to handle some wastes, is the least preferred waste management method. Landfills are very costly and may involve some risks. In most communities, locating landfill and incinerator sites is a problem as well.



Why Recycle?

Recycling reduces the amount of waste that needs to be buried in a landfill or incinerated. This reduction in volume may result in reduced disposal costs and add to the useful life expectancy of a landfill. And recycling puts discarded material to valuable use, cutting down on litter and conserving natural resources. In some localities, recycled materials are sold, benefiting the recycling program.

A Recycling Component

Adding a recycling component to an existing municipal solid waste system is a challenging process. To begin, your state or community should consider the following approaches:

- Analyze the contents and source of your waste.
- Learn about existing waste disposal and collection systems, including their costs and capabilities.
- Determine to what degree recycling is already being conducted in your state or community.
- Identify public attitudes about recycling.
- Study which recycling options might best meet your special needs.
- Explore existing markets for recovered materials and the possibility of finding new ones.

RECYCLING OPTIONS THAT WORK

Recycling programs come in many shapes and sizes. The type of recycling program you choose should be designed to meet your community's needs. For example, consider what kind of collection system would be the most expedient, the most convenient to citizens, and ultimately the most successful. And does it make sense in your community to target specific wastes—office paper, yard clippings, plastic soft drink bottles?

Collecting Recyclables

For citizens, the most convenient kind of collection is curbside collection. To make collection even handier, some communities provide householders with special containers for separated wastes. Some

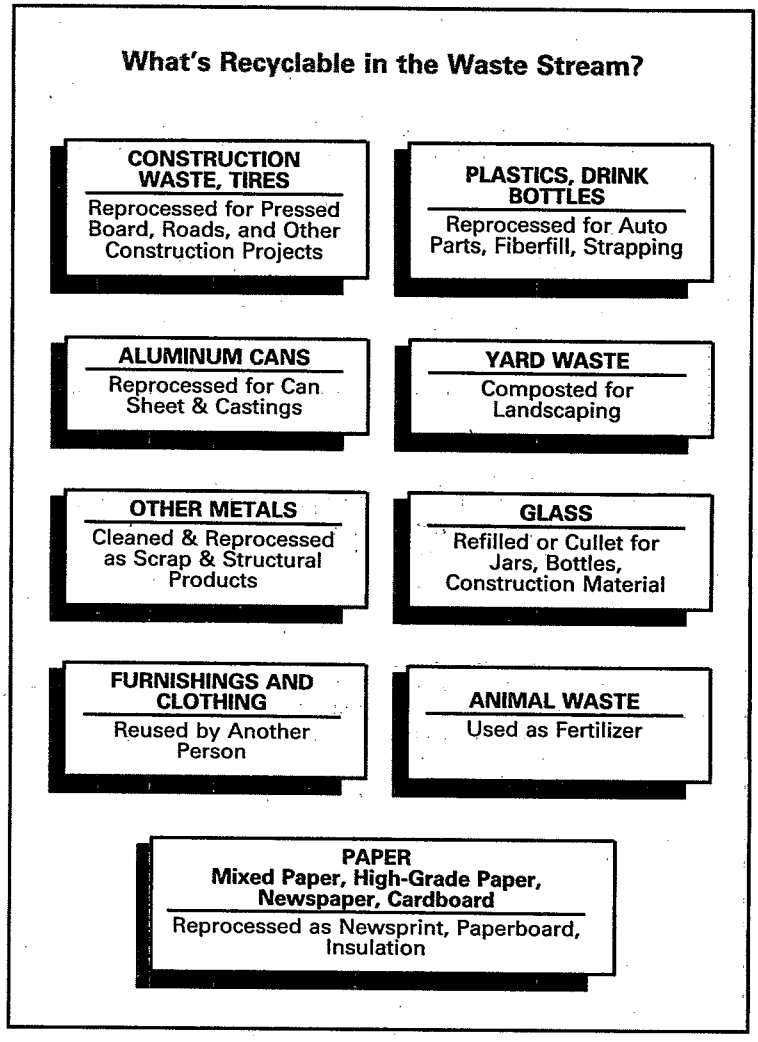
neighborhood pickups are combined with regular garbage collection; others use separate collection systems. A number of communities offer incentives like cash or gifts to cooperating households. While curbside collection may be costly, the success rate may make it worthwhile, especially in populous areas. In highly urbanized areas, apartment house and office building collection systems can work well, too. And mandatory systems may yield more recyclable materials than voluntary programs.

In many communities, drop-off centers work. These centers range from landfill locations, where people or machines sort recyclables, to "theme centers." For example, the Fort Seminole Recycling Center in Tallahassee uses a frontier fort motif and buys back recyclables. Financial incentives or contributions to charity encourage participation in other places. A number of communities locate drop-off centers in convenient spots like shopping malls; some centers are even mobile. Often, centers are run by private groups or as joint private-public enterprises.

Obviously, most drop-off centers are cheaper to operate than curbside collection systems. However, drop-off centers typically yield less waste for reuse.

Choosing Recyclables

What is in a typical trash can in your community? If it is anything like the national average, you can expect the bulk to be paper and yard waste. Newspapers are easily recycled. Yard clippings and leaves can be composted and used for landscaping. Businesses around the country are recycling computer paper and other high-grade paper, cardboard, and glass. And clean wood wastes can be processed into usable lumber. Of course, metals, such as aluminum, are valuable commodities as well.



Citizen Participation

Encouraging participation to increase the amount of recovered waste can be the greatest challenge to any recycling program. There are many ways to increase recovery and participation rates. Many communities have active promotional campaigns. Providing special containers for recyclables seems to help, too. Some places have chosen mandatory over voluntary programs. Others rely on voluntary efforts, but use creative approaches to boost participation.

Incentives have been initiated in a number of communities. For instance, Rockford, Illinois, has incorporated a weekly garbage lottery award of $1,000 to any resident whose inspected trash bags are free of newspapers and aluminum cans. Camden, New Jersey, hopes that, following the first three years of its recycling program, profits can be returned to the public in the form of improved services and new community projects.

As recycling programs grow and ensure a steady volume of recovered materials, new markets evolve. For example, New Jersey's new mandatory program has spurred development of new glass cullet, used paper, and aluminum plants within the state.

Marketing Recovered Material

Identifying and developing markets for recovered materials is another major challenge for state and local recycling programs. A recycling market is any source of demand for waste materials. To find the most suitable markets, many communities develop marketing plans. A typical plan may address the availability and locations of markets and the types and grades, amounts, specifications, transportation requirements, and price-setting mechanisms for a community's recovered materials. Services, such as storage and processing, may also be factors to consider. Many communities enter into contracts with purchasers, even though prices usually fluctuate. And some programs market cooperatively with neighboring programs to cut marketing costs.

In 1987, New Jersey's Office of Recycling published a guide to marketing recyclable materials. The guide is one of several available sources of useful information on marketing recovered materials.

Developing markets is a continuing challenge to EPA, states, communities, industries, and consumers. Demand for recyclables needs to be stimulated, marketplace gluts need to be avoided, and industries, business, and household consumers need to buy products made with recycled materials.

RECYCLING WORKS!

All around the country—in communities such as yours—recycling is working to reduce the volume of trash in need of disposal. Recycling is one key part of your integrated waste management system that makes sense.

Each community has its own unique waste problems that call for special solutions. A number of successful programs are described on the following pages to give you some ideas as you plan your community's recycling program. Some of the success stories take place statewide; most are local. Two describe efforts of villages and small towns to join together, forming regional recycling programs. While some success stories highlight curbside collection, others address unique drop-off systems. Several involve some private sector sponsorship; while others are totally run by private enterprises. A used oil program and a leaf composting project are highlighted here, too. What they all add up to is—

RECYCLING WORKS!

Alabama

Type of Program

Used oil collection.

PROJECT ROSE™

recycled oil saves energy

State Overview

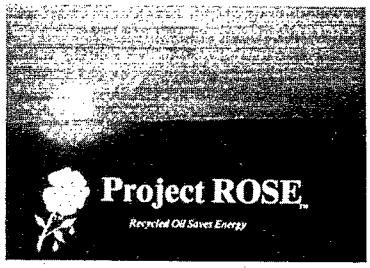
Alabama's borders extend from the Tennessee Valley to the Gulf of Mexico. With the exception of Birmingham and metropolitan areas around Mobile, Montgomery, and Huntsville, Alabama is predominantly rural. About four million people live in Alabama.

Background

Only about half of the nation's used oil was recovered and reused in 1977. The other half was usually discarded, often to the detriment of the environment.

In 1977, as part of a nationwide effort to conserve energy, Project ROSE was created. ROSE stands for Recycled Oil Saves Energy. Alabama recognized that its citizens could salvage millions of gallons of used crankcase oil a year. This oil would not be haphazardly dumped. Furthermore, new developments had made refining, processing, and reclaiming used oil a feasible and attractive idea.

Annually the state generates more than 17 million gallons of used automotive oil and 7 million gallons of used industrial oil. Most of the industrial oil is routinely recovered; however, in establishing Project ROSE, recovering used automotive oil presented a great challenge: Individuals who changed their own motor oil needed to be made aware of the hazards of dumping it, and garages needed reliable collection services. Project ROSE was designed to collect used oil from individual, corporate, and municipal consumers, garages, and service stations for treatment by a used oil processor.



Alabamians recycled 8.2 million gallons of used oil in 1986.

Program Description

Project ROSE is a nonprofit conservation program initiated by Alabama's Science, Technology and Energy Division, Department of Economic and Community Affairs, and sponsored by the University of Alabama. The program's goal is to protect the environment and conserve a valuable resource. To accomplish its goal, Project ROSE officials assist do-it-yourself used oil changers in recycling used oil and provide collection and recycling information to used oil generators, collectors, and recyclers.

To start Project ROSE, pilot projects were conducted in Tuscaloosa and Mobile. These cities were selected because of their large volumes of available used oil, the number of volunteer collection centers, and the availability of collectors and recycling facilities. The chance of success appeared promising.

The development of these projects required the workers to do the following:

Conduct Surveys. Surveys were conducted to provide basic data from individuals about whether they would recycle; from service stations about amounts, storage capacities, and collection services; and from waste oil handlers about volumes, incentives, fees, and processors' availability and capacity. The results of the surveys showed a shortage of collectors and collection centers. The surveys pointed the way for a local government-sponsored program in Tuscaloosa. And, since Mobile had larger volumes of used oil and a number of used oil collectors, sponsorship by the private sector was proposed.

Identify Sponsors. City, county, civic groups, private industry, and joint sponsorship were explored as project sponsors. In Tuscaloosa, the city sponsored the program; in Mobile, private industry sponsored it.

Select from Alternative Collection Methods. Curbside collection, service station collection, and consumer centers were considered. In Mobile, collection centers were to supplement curbside collection and service station efforts. In Tuscaloosa, curbside pickup was selected. One thousand gallons of used oil a month were collected this way from Tuscaloosa.

Publicize the Program. Newspaper, radio, and television ads were used and pamphlets were distributed to promote the projects. Pamphlets were particularly useful to promote curbside pickup.

Evaluate the Results. In Tuscaloosa, a gain from 1,000 to 1,200 gallons of used oil a month was documented during the oil collection drive. In addition, more businesses requested drums for collecting used oil. Mobile's pilot project resulted in an estimated 750,000 gallons of used oil being reclaimed, an increase from 300,000 in the previous year.

Expand the Program. Project ROSE expanded its collection programs for used oil to 12 additional areas. Sponsors ranged from the League of Women Voters and Alabama Conservancy to city sanitation departments and private businesses.

What Makes Alabama's Program Unique?

From two pilot used oil projects, Alabama's Project ROSE has grown to national prominence. Currently, three types of used oil programs comprise Project ROSE: curbside collection, collection centers, and drum placement.

The curbside collection program is primarily used and best suited for metropolitan areas in which consistent garbage collection is provided. Based on survey data, 70 percent of all respondents replied that they would save their used oil for recycling if it were picked up at their homes. The Cities of Birmingham and Tuscaloosa operate a curbside collection program for city residents served by curbside garbage collection. City garbage trucks, equipped with metal storage racks costing $60 each, have been adapted to transport used oil deposited along the curbside. Used oil is stored during route collection and transferred to a holding tank at city facilities. A collector picks up this used oil and pays the cities at a price determined by current market value.

A mass media campaign directed toward the cities' residents was found to be essential to the implementation of a curbside collection program. The media program helps to make residents aware of the service being provided to them by each city. The campaign also explains the hazards of improper disposal and outlines the procedures used and type of storage container needed for participation in the program. Media promotion has been maintained to ensure success and maximize program benefits.

The Project ROSE collection center program consists of service stations, garages, and automotive service centers which voluntarily accept do-it-yourselfers' used oil for recycling. These businesses routinely collect used oil and practice recycling to safely dispose of used oil while gaining a small profit from its sale. Once contacted by Project ROSE, most service stations and garages accept used oil. The news media is informed about a service station's or garage's participation as a Project ROSE collection center.

Service stations that participate receive information about used oil collection and about recycling businesses operating as the Project ROSE used oil waste exchange. This information and other resources are available from Project ROSE. Future plans for Project ROSE include a statewide effort to contact all service stations, garages, and automotive centers to inform them of the waste exchange services the program provides.

The third type of collection program is the drum placement program, in which 55-gallon drums are provided for do-it-yourself used oil collection. This program operates in rural areas where there are few service stations or garages. Drums are located on the premises of cooperating businesses and small government agencies.

Information about collection center locations is provided to people who call Project ROSE on one of two toll-free, in-state hotlines.

Community awareness and statewide recognition of Project ROSE are essential to a successful recycling program. Media—radio, television, newspapers—are used extensively to disseminate program information and publicize the toll-free hotline numbers available for residents seeking local collection center information. Materials describing Project ROSE and detailing the environmental preservation and energy conservation benefits of recycling are provided free upon request. Project ROSE also provides informational materials to businesses, civic groups, environmental organizations, trade associations, and state agencies to be included with business correspondence. A quarterly newsletter is distributed in Alabama and nationwide to used oil industry members, state recycling agencies, and other persons and organizations which support the program.

In addition, an audiovisual presentation is available for statewide distribution. Designed for civic groups, environmental organizations, trade and business associations, schools, conferences, and workshops, this program provides essential program information and encourages do-it-yourself recycling. The presentation also assists communities in organizing collection programs where none currently exist.

Obstacles Overcome

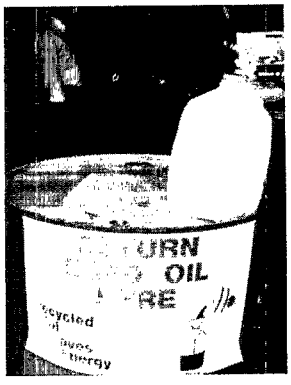
The chief obstacle overcome by Alabama's Project ROSE was getting do-it-yourself oil changers to recycle. The program provides information to do-it-your-selfers regarding environmentally safe used oil disposal and recycling methods. Moreover, the program makes sure there is an available oil collection system for Alabamians' used oil.

While it is not possible to determine the amount of used crankcase oil collected from do-it-yourselfers, Alabamians recycled 8.2 million gallons of used oil in 1986. Project ROSE operates with city curbside collection and 300 collection centers. And it covers 53 of Alabama's 67 counties. This used oil recycling network works!

Program Contact

For further information about Alabama's program, contact Janet Graham at (205) 348-4878 or write to

Janet H. Graham, Coordinator
Project ROSE
University of Alabama
Box 870203
Tuscaloosa, AL 35487-0203



Janet Graham suggests: "Project ROSE has shown that one person can make a difference in saving energy and protecting the environment."

Austin, Texas

Type of Program

Voluntary curbside recycling program.

Community Overview

Austin, the capital of Texas, has an area of over 160 square miles. It is populated by almost one-half a million people, who dispose of almost 300,000 tons of waste each year. The city provides garbage collection to more than 113,000 single-family dwellings, while private haulers collect from 65,000 households in multi-family units and businesses. Two private landfills and a municipal landfill accept refuse. The municipal landfill charge is only $10 per ton. In addition, there are two county-operated transfer stations.

Background

In February 1977, the Austin Tomorrow Plan directed that the City of Austin seek environmentally sound methods of solid waste management. Recognizing the benefits of alternative disposal methods, the plan stated that waste recovery systems need not be financially self-sufficient. Program costs should be weighed against alternate costs of land disposal plus the environmental and social costs of additional landfill capacity.

In June 1981, a 20-year Solid Waste Management Plan was adopted by the city that called for landfilling, composting, transfer stations, resource recovery (waste-to-energy), and recycling.

In February 1982, a pilot curbside recycling program was implemented in two neighborhoods including 3,000 homes. Due to its success, the service area was expanded in early 1983 to 12,000 homes. During the second year, over 100 tons per month of glass, newspaper, and cans were collected. In the fall of 1983, a volunteer block leader program was established, and five-gallon plastic buckets were made available to participants through fire stations. Both the dedication of block leaders and the availability of containers have contributed to increased public awareness and participation in the curbside program.

The weekly tonnage of recyclables picked up by city crews increased by 14.5 percent, from 110 to 126 tons per week.

Program Description

Austin's curbside recycling program is voluntary. It serves about 88,000 households, 75 percent of the collection service area. Pickup is once a week.

Participation is approximately 25 percent, and about 4 percent of the recyclable material is diverted from the landfill. Color-mixed glass, aluminum and steel cans, and newspapers are picked up. A major local company buys most of the recyclable material.

Austin's million dollar annual budget covers its entire waste reduction program, including curbside recycling. To offset this cost, nearly a third of this amount comes from the sale of recovered material. The remainder is received from user and collection fees.

In addition to curbside recycling, Austin sponsors other recycling services.

Annual Christmas Tree Recycling. About 22,000 trees were reclaimed and chipped for mulch and compost in 1987.

Municipal Landfill Recycling. Approximately 40 tons per month of appliances, bulky metals, and other recyclables are dropped off at the site and recycled by private groups.

City Office Facility Recycling. Approximately 10 tons of office paper is recycled per month by private groups.

Private Drop-Off Site Recycling. Six private newspaper drop-off sites are strategically placed around Austin for citizens who do not receive curbside recycling service. At two of these sites, glass and metal are dropped off as well.

Buy-Back Recycling. Several buy-back organizations in the Austin area buy aluminum cans, newspapers, cardboard, glass, and bulky metal items. Other organizations accept used building materials, clothes, appliances, and old furniture for repair and reuse.

Home Chemical Collection. This annual event collected 168 barrels of assorted hazardous materials in 1988, recycled 600 auto batteries and 2,600 gallons of used motor oil, and directed 4,500 gallons of usable paint to local housing rehabilitation projects.

Municipal Sewage Sludge Composting. Presently, Austin's Wastewater Utility composts about 40 percent of its dewatered sewage sludge, adding wood chips from private tree trimming companies and water hyacinths used in the polishing of wastewater effluent, to provide carbon for the composting process. The finished compost is used on municipal parks and recreational areas.

What Makes Austin's Program Unique?

One reason for the Austin program's success is its block leaders. The city is divided into recycling districts of approximately 1,400 homes each. A volunteer block leader is assigned 20 householders. Each household is presented with information and encouraged to recycle. Block leaders, during home visits to their neighbors, distribute recycling and composting literature, recycling pails, yard signs, and bumper stickers. These good-will ambassadors show how to prepare cans, bottles, and papers for curbside collection.

Recycling Week is another unique program. In 1988, the week of September 11–17 was selected to call public attention to new developments in the city's curbside recycling program, and to recognize the involvement of businesses, schools, and citizen groups in Austin's waste reduction efforts. The city dropped its requirement for the color-separation of glass containers collected at the curb, simplifying the role of the household recycler. In addition, a new campaign was launched to recruit more than 1,000 block leaders.

Obstacles Overcome

A privately sponsored "Cash for Trash" program went into effect during Recycling Week, offering a $100 prize each day to a randomly selected household with recyclable materials set out for curbside pickup. Private industry and a leading newspaper will provide continuing sponsorship of "Cash for Trash" as an ongoing incentive to encourage curbside recycling participation.

Keep Austin Beautiful programs involving Austin public schools and the business community were also promoted during Recycling Week. Middle schools and junior and senior highs began recycling school paper and aluminum cans on their campuses to benefit their student activity funds and to help the district cut down on its disposal costs. The program, supported by private and public auspices, honors the school with the highest per capita recycling totals at the end of the school year. The Keep Austin Beautiful Clean Recycler Program serves to promote recycling and responsible waste management practices on the part of Austin businesses. In addition, a recycling forum included an open discussion of Austin's future prospects for alternative waste reduction programs.

Public awareness and education played a major part in the activities of Recycling Week, beginning with a press conference and mayoral proclamation at City Council chambers. Eleven articles on various aspects of recycling appeared in five local newspapers. All three major network television stations added their support to Recycling Week with coverage of its highlighted programs and events. Several local radio stations ran news items on Recycling Week, using press releases issued by Austin's Public Information Office.

A public service ad featuring a local musician was developed to provide continuing reinforcement of the Recycling Week message. The spot, promoting the ease of curbside recycling and the "Cash for Trash" program, was carried by four major local radio stations.

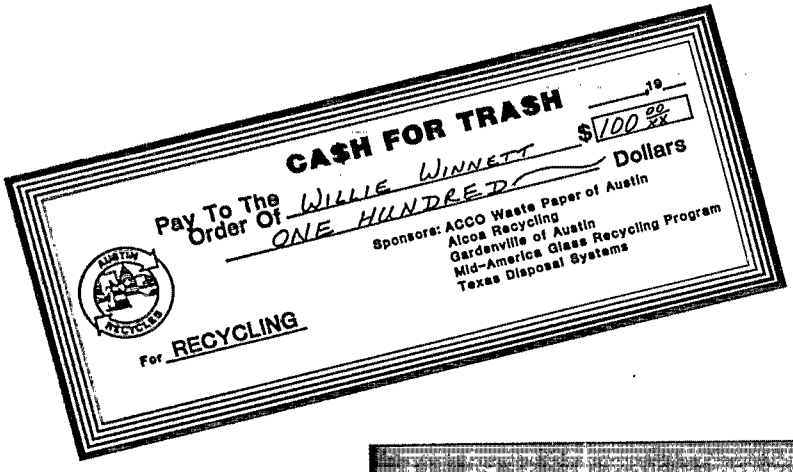
Since Recycling Week, the Austin Curbside Recycling Program has recorded daily, weekly, and monthly highs in material collections. On an average, the weekly tonnage of recyclables picked up by city crews increased by 14.5 percent, from 110 to 126 tons per week. Calls to the Waste Reduction Programs Recycling Hotline increased from a daily average of 25 to 35. Furthermore, 200 block leaders were added to the program over a two-week period.

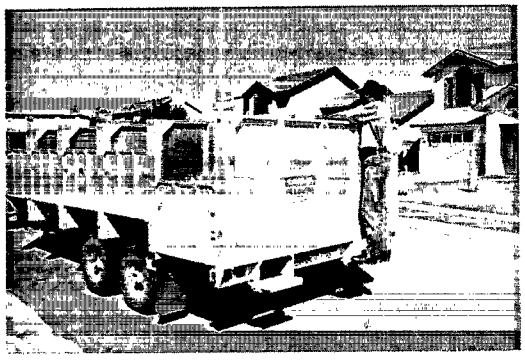
Austin is not facing an immediate landfill crisis; in fact, landfilling is still rather cheap. Therefore, increasing participation rates and material volumes is considerably more difficult. Austin's challenge is to increase recycling to the point that it is a cost-effective alternative to landfilling. Austin is approaching this challenge, confident that it will be met.

Program Contact

For further information about Austin's program, contact Alan Watts at (512) 472-0500 or write to

Alan Watts
Austin Recycling Program
Solid Waste Services Division
P.O. Box 1088
Austin, TX 78767-8844





Alan Watts advises other city recycling program managers to look ahead. "There are more than 20,000 households participating in our curbside program just because they recognize its long-term value to our economy and environment. It's this kind of commitment from people taking the initiative in their homes, workplaces, and in community life that we've got to build on to help us avoid a garbage crisis rather than confront one after it arrives."

Hamburg, New York

Type of Program

Mandatory curbside pickup of separated trash.

Community Overview

The Village of Hamburg, a suburb of Buffalo, has a population of 10,500. Its mandatory program was enacted in 1981.

Background

Hamburg's recycling effort began as a voluntary program with citizens taking separated newspapers, bottles, and cans to a recycling center. From there, local firms purchased the material they recovered.

Through the efforts of a volunteer committee, residents were surveyed and public hearings were held to determine whether to make recycling mandatory. As a result, a law was passed in 1981 that required separating and recycling of waste material. Compliance with the law after one month was 85 percent; since then, compliance has exceeded 95 percent.

Program Description

Residents put out recyclables on regular garbage collection day. Newspapers are put into a paper bag, bottles and cans into another, and cardboard into a third bag. Garbage trucks pulling trailers for the recyclables collect all the trash on a single run. The trailers filled with recyclables are taken to a center operated by an association for the retarded. There, the material is sorted for dealer pickup.

Recyclables represent 25 percent of Hamburg's waste, by volume. Recycling has reduced the need for landfills by 34 percent and saved as much as $24,000 in tipping fees each year.

Recycling has reduced the need for landfills by 34 percent and saved as much as $24,000 in tipping fees each year.

What Makes Hamburg's Program Unique?

Comply or else! While as many as 98 percent of Hamburg's residents cooperate, those who do not are penalized. If a household fails to separate all of its recyclables, it gets only one of its trash cans picked up. This one empty can is marked with an orange sticker which serves as a reminder that garbage must be separated. If the problem persists, a warning letter is sent. If the household still does not comply, their garbage is not picked up for a week—a rare occurrence. Offenders can be summoned to court, but garbage cans not picked up is considered a greater punishment.

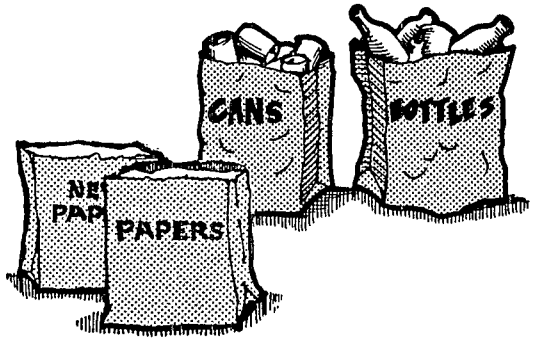
Obstacles Overcome

Hamburg has been successful in finding markets. There is, however, no assurance these markets will be steady. Securing markets is a constant challenge. For instance, when the newsprint market fell, the town continued to pick up the newspapers, taking what money they could for them. Hamburg has an agreement with a paper company that stipulates that the town gets half if the price is more than $40 a ton; if the price goes below $40, the village receives $20 a ton less than market price with a $1 minimum. Even at $1 a ton, the $10 a ton tipping fee is saved.

Program Contact

For further information about Hamburg's program, contact Gerald Knoll at (716) 649-4953 or write to

Gerald E. Knoll
Superintendent of Public Works
100 Main Street
Hamburg, NY 14075



Jerry Knoll offers this advice to small-scale programs: "Recycling had better save money. If not, it's a tough idea to sell! Moreover, if you're going to recycle, make it mandatory. Mandatory takes no more time but reduces the waste by greater amounts."

Mecklenburg County, North Carolina

Type of Program

Comprehensive integrated solid waste management, including a three-phased recycling program.

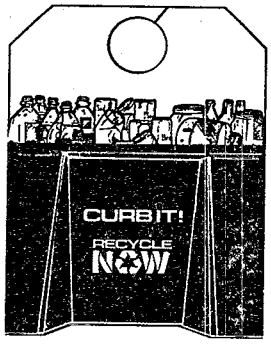
RECYCLE NOW

The recycling center took in almost $30,000 last year.

Community Overview

Mecklenburg County is a growing area, spurred by the economic development of its principal city, Charlotte. Many more people from other counties and states commute to Charlotte for work and shopping as well. By 2006, the current population of 460,000 is expected to increase by nearly 30 percent, with employment increasing by almost 50 percent.

The City of Charlotte and other municipalities provide for the collection of waste from its citizens, while Mecklenburg County handles waste management countywide.



Background

The one remaining county-run landfill is expected to be full by 1991. It currently handles about half of the more than 600,000 tons of solid waste produced annually. The other half is accepted at a private landfill. In 1986, only one percent of Mecklenburg County's waste was recycled.

Locating new landfills has been difficult because of the decreasing amount of available land, unfavorable soil conditions, potential long-term environmental concerns, legal barriers, public opposition, and restrictive new permitting regulations—not unlike other areas.

As a result, Mecklenburg County developed a County Solid Waste Management Plan. The plan focuses on recycling, resource recovery, and landfilling. Since the plan was initiated, recycling activities have steadily increased, two bond issues have been passed to support waste-to-energy facilities and other solid waste management programs, and additional landfill areas are being sought.

Program Description

The predominant avenue of waste disposal continues to be landfills. However, when the resource recovery and recycling programs are fully implemented, landfills will be used only for disposing of noncombustible and non-recyclable material, as well as residue from waste-to-energy facilities.

Over the next five years, a three-phase recycling program will be carried out. A 20-year goal of 30 percent waste recycling has been set by the county. Phase I of the recycling program is now under way. It includes multi-materials curbside collection in selected municipalities and neighborhoods, a temporary processing center, and an expansion of already existing recycling efforts. These existing efforts include

- Two staffed and six unstaffed drop-off centers.
- "Metro-mulch," where clean yard waste is left for shredding and sale.

- Pilot curbside collection of glass, aluminum, newspapers, and plastic soft drink and liquor bottles.
- Cardboard recovery at the landfill.
- Metal recovery at the landfill.
- White office paper collected from county and city offices.
- Development of efforts to increase public awareness and promote recycling.

Phase II will further expand current recycling programs and will add new ones.

- New drop-off centers.
- Curbside collection in all municipalities and construction of a materials processing facility by 1989.
- Sorting operations for selected recyclables at all disposal sites.
- Separate yard waste collection and recycling facility.

Phase III will include new programs, policies, and regulations that are still needed to achieve the 30 percent recycling goal.

What Makes Mecklenburg County's Program Unique?

The county's recycling budget, funded through landfill user fees, is over $1 million. This pays for a staff of 25 to administer and operate its recycling program.

The landfill's recycling center took in almost $30,000 last year. This revenue came from selling the newspaper, three colors of glass, aluminum cans, and plastic soft drink and liquor bottles collected at curbside.

To encourage recycling, landfill users can dump free if they bring in a set amount of recyclables. With this incentive, individuals and businesses bring in separated recyclables just to avoid the landfill fee. Furthermore, when it was discovered that municipal "freeloaders" were mixing recyclable metals with their other wastes, these town collectors agreed to deposit metals in separate bins. This move has increased revenues from recycled metals.

The county's tub grinder, located at the landfill, shreds bush and tree cuttings. The shredded mulch is sold to the public for about $4 per yard. The county and cities use it for landscaping.

Approximately one-fourth to one-third of all residential waste is yard waste—leaves, grass, and other clippings—the largest waste stream component. A separate collection and recycling program for yard waste is just beginning.

The multi-materials curbside recycling program, begun in 1987, has an average participation rate of 74 percent. Approximately 9,100 homes participate in the program. In the selected areas, newspaper, glass containers, beverage cans, and plastic soft drink and liquor bottles are collected. Residents have a red plastic container for mixed bottles, cans, and jars; bundled or bagged newspapers are placed on top.

Two types of trucks transport these materials to a processing facility. The trucks, operated by one person, have separated storage compartments for three different materials.

Plastic bottles are shredded by a granulator donated by Coca-Cola. The company has also provided free consultations and a guaranteed market for the plastic.

An extensive public awareness and promotion program has included widely disseminated and effective informational materials, mass media support, educational conferences, and public events to spur recycling participation. A volunteer speakers' bureau uses an audiovisual program for public presentations. Volunteer citizens and service organizations are working with Mecklenburg County and its municipalities to make recycling work. The public awareness success can be measured by the high recycling participation levels, the approval of bonds for waste-to-energy, and the commitment of elected officials to help meet Mecklenburg County's waste reduction goals.

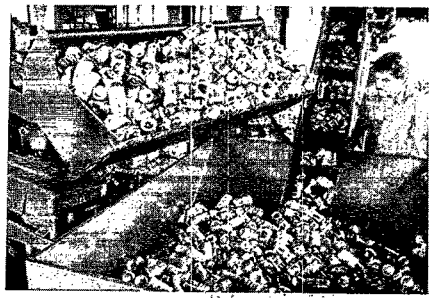
Obstacles Overcome

The most difficult hurdle the recycling program has had to clear is one of doubt that recycling really works. It took several years to secure start-up funding for the recycling experiment. With good planning and public support, the experiment is now successful.

The City of Charlotte is even taking on more responsibility for an expanded recycling pickup program. Currently, the pickup program is working in a group of diverse neighborhoods—rich and poor, young and elderly, black and white. Furthermore, the data from this program have enabled the managers to project tonnage that can be expected from a citywide program in Charlotte. These data are being used for accurate planning for a materials processing facility. Those kinds of successes have helped to gain the support of those who doubted the value of recycling.

The success of curbside recycling has been attributed to two key efforts: An intensive public awareness campaign and the receipt by each participating household of a red box for indoor storage of mixed cans and bottles. In addition to a $99,000 annual public awareness and education budget, private contributions have paid for printing of brochures and other publications.

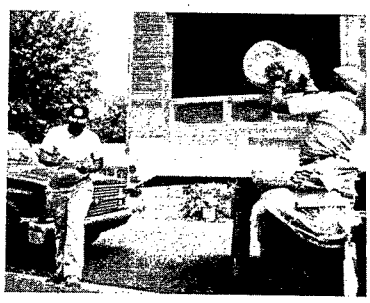
To complement the curbside collection program, the Mecklenburg County recycling program stresses the importance of drop-off centers, commercial recycling efforts, and composting projects. And recycling is only one part of an even larger integrated waste management scheme.



Program Contact

For further information about Mecklenburg County's program, contact Mecklenburg County Recycling, at (704) 336-2713 or write to

Recycling Division
Mecklenburg County Engineering Department
700 North Tryon Street
Charlotte, NC 28202



"Don't underestimate the complexity of a recycling program," warns Betsy Dorn, who for five years led the Mecklenburg County recycling charge. "Even the most successful residential pickup program will need to be bolstered with an efficient commercial pickup program and composting and drop-off components to reach a 30 percent diversion goal."

New Jersey

Type of Program

Mandatory recycling law.

In counties with mandatory recycling programs, 25 to 30 percent is being recycled.

State Overview

New Jersey is comprised of 22 solid waste districts with dwindling landfill capacity, particularly in its highly urbanized northern districts. Over 50 percent of New Jersey's solid waste is disposed of in Pennsylvania, Ohio, or Kentucky. Several counties pay over $100 per ton to manage their trash.

In New Jersey, there are 567 municipalities with a population of more than 7.5 million.

Background

In 1976, as part of the amended Solid Waste Management Act, a statewide management plan was developed. Each of the 22 districts is required to submit a solid waste plan for state approval. Plans typically include recycling programs, waste-to-energy facilities, and landfills designed to handle non-recyclables and residual ash from waste-to-energy plants.

New Jersey started an Office of Recycling in 1982 under the Recycling Act passed by the legislature in 1981. The program was funded by a statewide landfill surcharge of 12 cents a cubic yard. As of 1986, about 11 percent of the total solid waste was being recycled by 424 of the reporting communities. The recycling office provides grant money, based on recycled tonnage, as an incentive to communities to participate in the program and document their recycling efforts.

Program Description

In 1987, New Jersey's mandatory recycling law went into effect. It requires each county to develop and submit a recycling plan as part of its solid waste management plan. Following approval by the New Jersey Department of Environmental Protection, each community begins a recycling program that recovers a minimum of 15 percent of recyclable material in the first year. After one year, the minimum increases to 25 percent. According to the law, at least three materials must be recycled. Typically these materials include newspaper, aluminum cans, and glass containers. As of September 1988, leaves are banned from landfills, making composting a high priority as well.

What Makes New Jersey's Program Unique?

New Jersey, with its 25 percent recycling goal and limited landfill capacity, also counts on waste-to-energy facilities to manage the largest portion of its waste stream. At least 11 large scale projects are currently planned.

Studies have shown that recycling and energy recovery can be compatible in New Jersey. Removing recyclables from burning can increase the heat content of the remaining waste and thus reduce the ash residue. Recycling could also cut capital costs significantly because the waste-to-energy facilities could be smaller.

In Warren County, a relatively rural area, construction of a 400-ton-per-day facility and a nearby landfill to hold its ash residue and by-pass waste is under way. Both projects will comply with New Jersey standards. The county has agreed to accept waste from a neighboring county as well.

New Jersey's mandatory recycling law provides for the funding of state, county, and municipal efforts through a $1.50 per ton facilities surcharge. Through this, an annual revenue of $12 million is anticipated. This fund supports New Jersey's Office of Recycling, which receives 8 percent of the total amount annually to run the program. Counties receive 7 percent for program grants and also receive funding for education programs. Municipalities receive 40 percent of the fund in tonnage rebates. A market development study to focus on recyclables such as tires, paper, and plastic beverage containers was funded at about $200,000.

NJ Recycling Payouts

40%	Tonnage grants to counties and municipalities
35%	Low-interest loans to businesses; for research and market development
10%	Public education and awareness programs
7%	Administration
8%	Program grants for counties

The law encourages industries to purchase new recycling equipment by allowing them to receive a 50 percent tax credit. Moreover, a number of the law's provisions help stimulate markets for recyclables. For instance, by 1989, at least 45 percent of the amount of money spent for paper purchased by the state must be spent for recycled paper. Further, the State Department of Transportation is encouraged to use recycled material in its asphalt. In addition, priority must be given to using leaf compost material in maintaining public land.

Each county designates a recycling coordinator and is responsible for plan development. Municipalities have additional responsibilities. They must

- Designate a recycling coordinator.
- Provide for collection.
- Require source separation of its designated recyclables.
- Develop recycling plans for new development.
- Submit tonnage grant reports.
- Publicize the recycling program at least every six months.
- Require separate leaf collection during fall months.

By April 1990, the first report to the New Jersey Legislature will document progress under the law and make recommendations about continuing the recycling surcharge.

Obstacles Overcome

New Jersey's main obstacle has been to get 21 county solid waste plans submitted and approved, and then to get 567 municipalities to comply. To overcome this obstacle, the state recycling coordinators meet with the county coordinators at least every other month. In turn, the county coordinators meet with their municipal counterparts. This kind of network helps to stimulate activity, encourages interprogram support, and promotes information exchange. And the network helps to boost county and municipal participation.

More and more county and community programs are joining the recycling effort. Before the program was mandatory, the tonnage grants provided a strong incentive to recycling. The tonnage grant program has also paid off as more complete waste data are collected, helping the state plan ahead.

Some counties have already enacted mandatory recycling programs. In these counties, 25 to 30 percent of waste is being recycled. Large drops in their waste flows are in evidence, demonstrating that recycling is working.

Program Contact

For further information about New Jersey's program, contact Aletha Spang, at (609) 292-0331 or write to

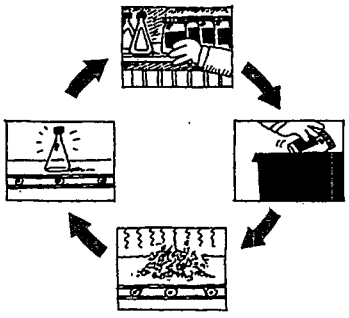
Aletha Spang, Administrator
Office of Recycling
New Jersey Department of Environmental Protection
401 East State Street (CN 414)
Trenton, NJ 08625

Aletha Spang advises state recycling program managers: "Changing the behavior of citizens to comply with recycling laws is not an impossible task. The majority of citizens are willing to comply as long as they know how the program works and realize the importance of participation."

Oregon

Type of Program

Law requiring recycling opportunities, public education, and promotion.



Oregonians recycle 90 percent of their beer and soft drink containers and 70 percent of their newspapers.

State Overview

Oregon's three million people live in small cities and towns and one major city, Portland. The state is divided into 38 wastesheds. Located in the Pacific Northwest, Oregon has a strong timber industry which supports the production of paper and other wood products.

Boasting the first bottle recycling law in the nation, Oregon has been in the forefront of environmental consciousness. Its citizenry encourages and responds well to environmental conservation and protection. Oregonians generally recycle about 90 percent of their beer and soft drink containers and almost 70 percent of their newspapers.

Background

In 1983, the Recycling Opportunity Act was passed. It was designed to make participation in recycling easy and to reclaim recyclable items where they are generated: in homes, businesses, and industries. The recycling law added to an already well-developed recycling system. This system was comprised of recycling brokers and markets, nonprofit groups, recycling depots, independent collectors, stores collecting beverage containers, and some curbside collection programs with recycling services.

The law, implemented in 1986, requires not that everyone recycle, but that everyone have an *opportunity* to recycle. This means

- A recycling depot at every landfill and transfer station.
- Monthly curbside collection of source-separated materials in cities of more than 4,000 population and within a Metropolitan Service District.
- A public education and promotion program to encourage recycling.

In addition, the law sets priorities for waste management. The highest priority is to reduce wastes; then to reuse, recycle, and recover energy; and, as a last resort, to landfill. Recyclable material is defined as "any material or group of materials which can be collected and sold for recycling at a net cost equal to or less than the cost of collection and disposal of the same materials." This definition allows for market fluctuations, recognizes new markets, and acknowledges regional differences in access to markets. There are 69 Oregon cities for which curbside service is required under the law.

Program Description

Curbside service is provided in 67 cities by garbage haulers. To encourage participation, public education and promotion programs are in effect. They range from ad campaigns to volunteer-produced pamphlets delivered door-to-door by Cub Scouts. In addition to curbside service in larger cities, drop-off depots operate at almost every public disposal site in the state.

Local governments, recyclers, haulers, and landfill operators have been working together. They report to the state on their communities' implementation programs. The state then must decide if the programs are adequate.

In addition, many smaller cities of under 4,000 people have chosen, in conjunction with haulers, to provide for collections of recyclables. No community has established mandatory recycling.

The state, as part of its effort to support recycling, has provided technical assistance to local government officials and recyclers. For example, a generic education and promotion program was designed for adaptation by local groups. Included are flyers, doorhangers, radio announcements, and newspaper ads. A bimonthly newsletter serves as a clearinghouse for informational and promotional material exchange. Workshops have also been held to promote the exchange of technical and educational tools.

Since 1982, parts of Oregon's recycling effort have experienced tremendous growth: from 14 to 104 cities with recycling collection service; from 27 to 130 recycling depots at disposal sites; and most local communities with educational programs in effect. The number of recycling dealers, non-disposal-site depots, nonprofit group recycling drives, and stores redeeming cans and bottles has remained fairly constant.

Prior to passage of the Oregon Recycling Opportunity Act, Oregon already had a high participation rate. This high level of participation was exhibited in the existing recycling programs promoted by recycling dealers, nonprofit organizations like Boy Scouts, recycling depots, and the bottle bill redemption centers. The new curbside programs have increased the number of new recyclers, while most Oregonians continue to recycle with their same old recycling programs. For most of the new curbside programs, participation rates run between 10 and 20 percent for households served by curbside pickup.

Two Portland area suburbs, Gladstone and Oregon City, have initiated a pickup and recycling program for yard waste as well, and the entire Portland metropolitan area is gearing up for a new yard debris recycling program. Eugene has a successful yard waste composting facility. West Linn also runs a yard waste processing facility that accepts as much as 50 percent of the city's yard debris.

In addition to newspapers, bottles, cans, cardboard, and yard waste, Oregon has developed three tax credit programs to promote recycling. The largest credit—50 percent—is available for the purchase of equipment to make recycled plastic products. The same credit is allowed for equipment to haul and refine used oil. Tax credits for the purchase of any other equipment solely or principally used for a recycling activity are worth 35 percent of the cost of the equipment. These are deducted from Oregon taxes over a five year period.

What Makes Oregon's Program Unique?

Oregon's wastepaper has proven to be a valuable substitute for its precious lumber. Mill and other wood wastes, combined with waste paper, have provided raw materials for the state's paper industry. The state's steel mills buy scrap metal, and the products of these mills are shipped throughout the West and to other countries. There are ample markets for glass and aluminum, and bottles are sold and reused as well. In addition, many of Oregon's communities have easy access to local and export markets. While Oregon has the built-in advantage of good markets, the state has made sure that it supplies a steady stream of recovered materials to maintain these markets.

Whether Oregonians recycle through their old systems or take advantage of the law's new recycling opportunities, they do recycle!

Obstacles Overcome

Oregon's recycling efforts have successfully jumped many hurdles. There are still obstacles to overcome, however. There is a lack of equipment specifically designed for recycling. And many local haulers have to modify equipment to fit small operations. Oregon is also limited by the poor market for plastics.

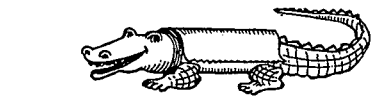
Furthermore, since the trash haulers are also the recyclers, a potential conflict of interest may exist. Recycling equipment requires sometimes major capital expenditures by recyclers. These will need to be repaid through revenues. If a hauler discourages recycling, he could add to the volume of garbage he hauls, increasing his garbage hauling revenue. In other words, he might earn more by hauling larger volumes headed for disposal than from recycling.

Program Contact

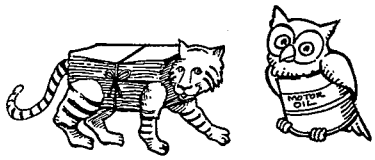
For further information about Oregon's program, contact Peter Spendelow at (503) 229-5253 or write to

Peter H. Spendelow
Hazardous and Solid Waste Division
Department of Environmental Quality
811 S.W. Sixth Avenue
Portland, OR 97204

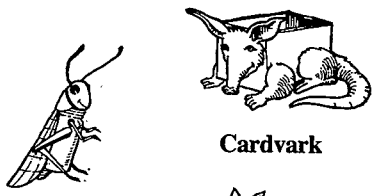
TRASH MENAGERIE



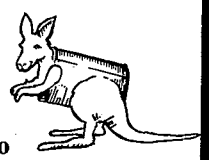
Foilagator



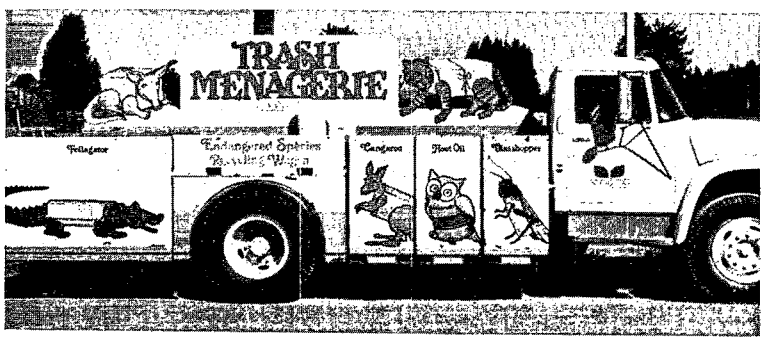
Paper Tiger **Hoot Oil**



Glasshopper **Cardvark**



Cangaroo



Peter Spendelow, an Oregon recycling specialist, suggests: "State governments need to lead the way for a strong public education program, but local communities need to devote considerable resources to this effort, too!"

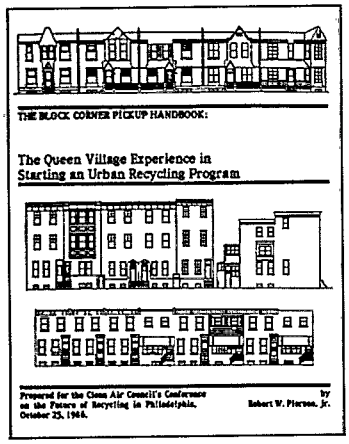
Queen Village Neighborhood, Philadelphia, Pennsylvania

Type of Program

Urban neighborhood "block corner pickup" program.

Community Overview

Queen Village is a central Philadelphia neighborhood of over 7,000 people living in a quarter of a square mile area. The Queen Village Neighborhood Association organized the voluntary effort to serve this urban community's dense population.


THE BLOCK CORNER PICKUP HANDBOOK:

The Queen Village Experience in Starting an Urban Recycling Program

Prepared for the Clean Air Council's Conference on the Future of Recycling in Philadelphia, October 25, 1988.

by Robert W. Pierson, Jr.

Background

Queen Village residents began to recycle in 1985 by starting a drop-off center. But the drop-off center was not convenient and did not work.

Still convinced of the merits of recycling, the neighborhood considered other options. The neighborhood group ruled out curbside pickup because of the expense. The "block corner pickup" was then initiated as a compromise between the efficiency of drop-off center collections and the convenience of curbside pickup. Picking up at designated street corners in this Philadelphia neighborhood also meant short traveling distances for trucks and reduced time spent by pickup crews.

Program Description

Between 9 and 10 a.m. on two Saturdays a month, neighbors take their newspapers, glass, and aluminum cans to their designated street corners. A city truck picks up the materials.

The truck, a driver, and two additional crew collect from 25 street corners in less than three hours. Because of the brief amount of time the trash sits on the corner, there are no complaints from neighbors and no opportunities for vandals. In addition to pickup time, it takes about two hours to report to the route, travel to the repository or buyer, unload, and report back to the base.

The Queen Village program serves about 1,200 households on 46 blocks. Blocks are recruited into the program only if there is a block coordinator to hand out reminder leaflets and encourage participation. Once the householders get used to block corner pickup, reminders are tapered off.

All local organization and publicity is handled by volunteers on the Queen Village recycling committee. The neighborhood, which sells the recyclables, uses the proceeds for block improvement projects.

The neighborhood uses the proceeds for block improvement projects.

What Makes Queen Village's Program Unique?

The block corner pickup program is unique in itself. To spread the idea to other communities, Queen Village's Recycling Committee chairman, Robert W. Pierson, Jr., prepared a handbook on how to start an urban recycling program. The handbook is entitled *The Block Corner Pickup Handbook: The Queen Village Experience in Starting an Urban Recycling Program.*

The handbook presents eight steps in developing a block corner pickup program:

- Form a recycling committee.
- Find a buyer.
- Find a truck to service the pickup route.
- Create awareness about the solid waste crisis and the benefits of recycling.
- Find block coordinators for block corner pickup.
- Set the program start-up date.
- Publicize the block corner pickup program.
- Begin block corner pickup.

The Queen Village program has been very successful. In fact, it has recently been compared with a curbside collection program in another Philadelphia neighborhood. The study concluded that Queen Village collected nearly twice the recyclables from each household served and is nearly four times more efficient in its use of collection crews and trucks than curbside collection.

Obstacles Overcome

Queen Village takes stock of its program from time to time and deems it a success, not only because of the comparisons above, but because of its growing participation. The neighbors are even considering an expanded program, weighing a number of possibilities such as

- Expanding pickup to include other materials.
- Recovering the bottles thrown away by restaurants and bars.
- Collecting high-grade office paper.
- Increasing the frequency of collection.
- Involving local schools in solid waste management projects.

The Queen Village block corner pickup concept does have some limitations.

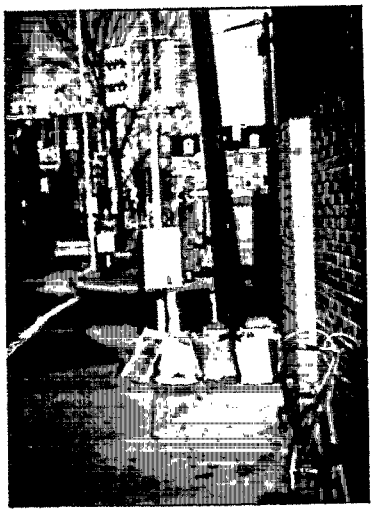
- It is difficult to organize block corner pickup programs. They require good local organization and information networks.
- The best day for community participation is Saturday, even though it is harder to find a hauler on Saturday.
- Cooperative neighbors' corner sidewalks are available for a very limited time only.

Queen Village has been successful even with these limitations.

Program Contact

For further information about Queen Village's program, contact Robert Pierson at (215) 563-4220 or write to

Robert W. Pierson, Jr.
Rogers, Golden & Halpern
1216 Arch Street
Philadelphia, PA 19107



Bob Pierson, volunteer spokesman for the Queen Village Recycling Committee, thinks that the block corner program can work in other urban neighborhoods: "Other communities, not able to arrange Saturday pickup, for example, may need to make special arrangements such as placing special recycling bins at block corners or exchanging the value of the recyclables for free pickup by a private hauler."

San Jose, California

Type of Program

Comprehensive waste reduction program includes voluntary curbside collection, special agreements with landfill operators, and a recycling zoning ordinance.

Community Overview

San Jose is a large metropolitan area of more than 730,000 people, generating about 635,000 tons of trash annually. Although the three landfills serving the area are currently handling those wastes, the commitment to recycling was born out of a strong environmental commitment by the City Council and the public. Commitment also grew in response to a disposal crisis in 1982, which underscored the need to diversify the city's disposal strategy beyond complete reliance on landfills.

Background

In 1983, San Jose adopted a comprehensive set of goals and principles for solid waste management, including reducing its waste stream by 25 percent by 1990. Recycling and waste reduction initiatives have been aggressively pursued to meet this goal. A curbside recycling program was the first major step of this effort. In 1985, the city's first waste reduction strategy to attain the 25 percent goal was adopted. The strategy focused on a $19 million, six-year waste reduction plan. Since then, a revised 1987 strategy calls for a $25 million effort and a 36 percent reduction in waste by 1992. San Jose has acted on evidence that recycling is and will continue to be less costly than collecting, hauling, and disposing of wastes in increasingly expensive landfills.

Program Description

San Jose's recycling program consists of its waste reduction strategy, the largest weekly curbside recycling program in the nation, and support for recycling in contracts, permits, and ordinances.

The curbside program, averaging 57 percent participation, was expanded to include 175,000 single-family households. Because it was demonstrated in the pilot study that more households participated when three special stacking containers were provided, the expanded program's residences all received containers. San Jose's expanded citywide effort now is recovering about 22,000 tons each year. To provide this service, the city has contracted with a waste company to provide the service for $1.9 million annually.

During the last fiscal year, the waste collection company received about one-third of its revenues from the sale of recovered material. The rest came from the city. Also, to bolster participation, the city has a major ongoing promotional program, with a budget

The curbside program was expanded to include 175,000 single-family households.

of $200,000 a year used for doorhangers, school outreach, minority outreach, and media programs. San Jose has saved over $190,000 in avoided landfill tipping fees since the start of this pilot program.

New initiatives under way in San Jose include developing a program to collect yard wastes at curbside for producing high quality compost, working to develop new markets for recyclables, designing a household hazardous waste program, and developing a pilot program for apartment house recycling. Another new initiative assists businesses in reducing their wastes and increasing the amount they recycle. And to discourage businesses from landfilling, a business tax of $2 per cubic yard is levied on all landfill disposal. One landfill operator is already diverting as much as 25 percent from its waste stream. Another landfill is developing a major "Recyclery" to recycle up to 40 percent of its incoming commercial waste stream.

What Makes San Jose's Program Unique?

In addition to recycling initiatives, San Jose has included a variety of requirements in collection and disposal contracts and landfill permits to help meet recycling goals. Disposal and permit agreements address

- Providing for composting.
- Using compost as landfill cover.
- Salvaging white goods and bulky wastes.
- Providing recycling information and economic incentives to encourage participation.
- Evaluating the potential of waste-to-energy on the site.
- Developing methane recovery.
- Maintaining scales and collecting data for use in future planning.

The State of California has passed an innovative beverage container recycling law which requires new recycling facilities to be established within one-half mile of every major supermarket in the state. To encourage the acceptance of these new recycling facilities, a zoning ordinance was enacted to permit mobile, movable, and stationary recycling collection operations in most zoning districts of the city. These are subject to appropriate regulations and assume compatibility with surrounding land uses. Similar efforts were made to permit recycling processing operations in most commercial and industrial zoning districts, subject to appropriate regulatory control. Furthermore, the zoning code ensures that recycling containers are built to prevent litter, to minimize noise and other nuisances, and to be attractive and blend in with their surroundings.

Obstacles Overcome

Through a carefully constructed strategy implemented over several years, San Jose was able to change its entire waste system from one that relied solely on landfilling to one that emphasizes recycling and waste reduction as primary goals.

But there are still hurdles to jump. One may be the proverbial price of success. The national prominence of San Jose's program has resulted in an overwhelming demand for tours, informational materials, and technical information. Requests come from other cities around the world, as well as from private industries. The amount of staff time needed to be responsive to these requests is a problem for the city.

To address this problem, San Jose is proposing that San Jose State University be funded to develop an information transfer program that would eventually be part of a national integrated waste management information network. The city is looking for $100,000 to fund this university-based system. A second phase of such a program would include curriculum development and training for recycling professionals.

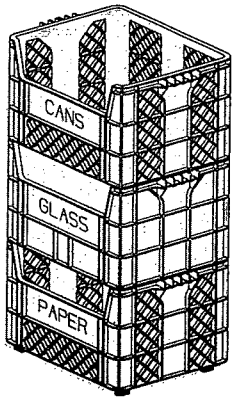
Another significant hurdle already cleared has been the funding of its expanded program. A 1985 city windfall went to support the expanded recycling effort. This money resulted from savings realized through the competition for garbage business. A revised business tax of $2 a cubic yard on trash, adopted in 1987, also supported program expansion. With other cities now able to use San Jose's facilities, additional revenues from business taxes will support a further expansion of recycling services.

The remaining hurdle involves how to accrue to recycling the avoided costs of collection and disposal. Currently, the city benefits from avoided disposal costs. The garbage collector pays the city a recycling rebate for every ton of waste recycled as an avoided disposal cost. The garbage collector, as a result of recycling, benefits additionally from needing fewer trucks on the road. The collection company does not currently share this benefit with the city. San Jose is negotiating with the garbage company to share those savings as part of the development of its yard waste composting effort. When the city solicits bids in 1990, garbage companies will need to reflect avoided collection costs in order to be competitive. Nevertheless, most San Jose residents already benefit from the city's recycling program and its integrated waste management system.

Program Contact

For further information about San Jose's program, contact Gary Liss at (408) 277-4509 or write to

Gary Brian Liss
Solid Waste Program Manager
Office of Environmental Management
801 N. First Street, Room 460
San Jose, CA 95110



Gary Liss believes: "The real key to accomplishing integrated waste management is for institutions—including contracts, permits, and rate structures—to be changed to foster waste reduction and recycling."

Santa Monica, California

Type of Program

Multi-faceted voluntary program, includes "recycling zones" for multi-family dwellings.

SANTA MONICA
RECYCLE

Community Overview

Santa Monica is a city of 96,000 people, 83 percent of whom live in multi-family housing. The city encompasses an area of about eight and a half square miles along California's coastline.

Background

The Santa Monica recycling effort was initiated under a 1981–1982 recycling grants program sponsored by the California Waste Management Board. An initial grant for $30,000 funded a feasibility study and preliminary design for the recycling program. A second grant for $260,000 was used to purchase equipment, improve existing recycling sites, and start a public relations campaign.

Santa Monica currently uses a privately owned landfill located 31 miles from the city. However, this landfill is expected to close by 1991 if it is not expanded. An alternative landfill is further away by 15 miles, but using it would require increased transportation costs and possibly increased tipping fees. In addition to the shortage and expense of landfills, Santa Monica is faced with another problem shared by many urbanized areas—the overwhelming percentage of people living in apartment complexes. To combat this potential obstacle, the city responded with the creation of a "recycling zone" program.

Program Description

Challenged by the number of citizens living in multi-family dwellings and the need to recycle their wastes, Santa Monica developed its "recycling zone" initiative. As a result, alleyways behind apartment houses are dotted with three specially designed, two-cubic-yard bins for mixed glass, mixed cans, and newspapers. Currently, no resident needs to travel farther than one-third of a mile to recycle. There are 61 drop-off zones serving 35,000 multi-family units. In 1988 and 1989, the program will be adding 30 new zones.

The recycling zone concept has also been expanded to nearly 25 bars and restaurants. Recycling bins received about three tons of material a month from bars and restaurants at the start of the program. Eight to ten tons a month are now collected in these bins.

In single-family residential areas, residents receive two five-gallon storing buckets for mixed glass and mixed metal.

Overall recycling participation in Santa Monica is at 27 percent.

A recycling crew picks these up biweekly, along with newspaper in bundles and used motor oil in sealed, non-breakable containers.

The recycling program has a contract to sell all collected materials to a private recycler, who leases property from the city. The private recycler also has a buy-back and drop-off center at this site, where glass, metal, and newspaper are purchased. In addition, the center buys scrap metals, various grades of paper, plastic beverage bottles, magazines, and phone books. Used motor oil and cardboard are accepted, but customers are not paid for these materials.

To encourage the proper disposal of used motor oil, a network of eight automotive service businesses was created to accept used oil from residents. By agreeing to participate, the businesses get their oil picked up free of charge by a private hauler.

Other recycling services offered to residents include a paint exchange and a household hazardous waste collection center. Santa Monica residents may bring their unused household paints to a special center at the recycling office. Residents may also pick up this donated paint, free of charge. Paint not taken by residents is recycled and used by the city for graffiti removal.

A household hazardous waste collection center is now open for Santa Monica residents only. Materials collected include solvents, paint thinners, pesticides, batteries, pool acids, household cleaners and other similar types of waste. The center expects to collect 30,000 pounds of household hazardous wastes annually.

In addition to these services, the city is also involved in collecting and recycling non-residential waste. A private company leases city-owned land and operates a "debris yard" where concrete, asphalt, and other demolition rubble are recycled into aggregate for construction uses. Scrap metal generated at city yards is collected and sold for recycling, and office paper generated at most city facilities is also collected for recycling.

What have all these efforts yielded? Total tonnage recycled includes the following:

ITEM	TONS IN 1986	TONS IN 1987–88
Newspapers	1,312	1,210
Glass	569	565
Aluminum cans	3.25	4.01
Steel cans	64	42
High-grade paper (from city offices only)	11	11
Scrap metals (generated at city yards)	161	154
Used motor oil	4.44 (1,269 gallons)	5.16 (1,474 gallons)

SVS

What Makes Santa Monica's Program Unique?

The city has a very successful participation rate of 22 percent for apartment dwellers. In fact, Santa Monica's recycling program was recognized in 1983 by the National Recycling Coalition as the "Best Multi-Family Program." The success of this program is attributed primarily to the convenient placement of recycling containers near apartment buildings. Overall recycling participation in Santa Monica is at 27 percent, with some single-family residential areas as high as 60 percent.

Santa Monica's special wastes collection is also unique. A new household hazardous collection center receives small quantities of hazardous chemical products as a free service to residents. These leftover products include corrosives like drain and oven cleaners and pool acids; solvents such as polishes, spot removers, and mothballs; paint products; aerosol sprays; pesticides; and automotive fluids. Furthermore, a guide to safe substitutes and alternatives to using hazardous substances has been prepared and distributed to households.

Obstacles Overcome

Santa Monica's recycling program has overcome a few obstacles. One obstacle, scavenging, has hampered the program since it reduces the amount of material collected. An insufficient market for products using recycled yard wastes led to the demise of the yard waste collection program—another minor setback.

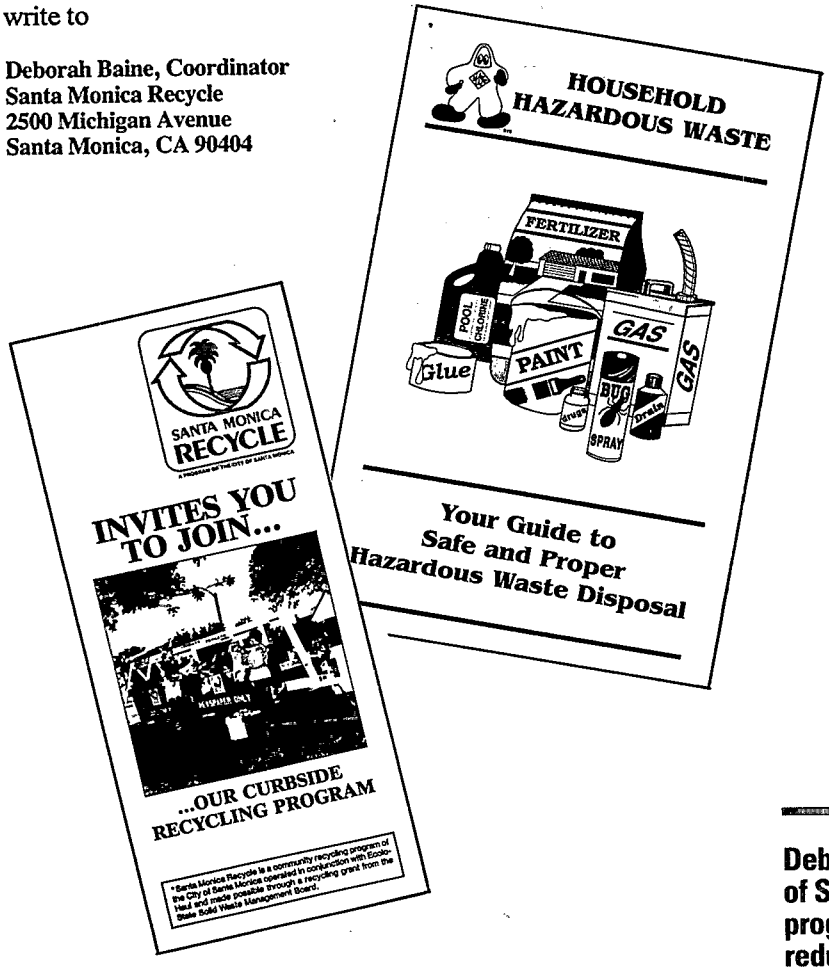
The city is also facing the challenge of recycling plastic containers. The original program was not designed to include plastics collection and recycling. Therefore, the current system would require modification and increased operational expenses in order to accommodate the additional volumes and special needs created by plastic bottles.

In spite of these setbacks and challenges, Santa Monica's recycling program seems to be thriving!

Program Contact

For further information about Santa Monica's program, contact Deborah Baine at (213) 458-8526 or 458-8527, or write to

Deborah Baine, Coordinator
Santa Monica Recycle
2500 Michigan Avenue
Santa Monica, CA 90404



Deborah Baine, Coordinator of Santa Monica's recycling program, suggests, "To reduce scavenging, avoid placing bins under building balconies, near gas or water meters, or across from carports or garage entrances with turnaround areas."

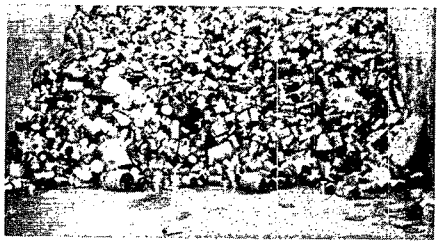
Sauk County, Wisconsin

Type of Program

Private, nonprofit, regional recycling enterprise.

Community Overview

Located in rural Wisconsin, Sauk County is the site of the Wisconsin Intercounty Nonprofit Recycling Company (WINR). The 43,000 residents of Sauk County and two towns in Dane County are served by WINR.



Rural communities are jointly served by this regional, nonprofit enterprise.

Background

In 1978, Mildred Zantow spent six weeks in Japan. There she saw that garbage is separated and that different items are collected each day. She returned to Baraboo, Sauk County, a firm advocate for recycling.

Ms. Zantow observed the large amount of plastics at the county landfill, mostly because there are many plastic manufacturers located in the area. One of those plastic companies agreed to purchase her recycled plastic if she bought a grinder at her own expense. Determined to make recycled plastic a reality, she cashed in her life insurance policy and bought a grinder. With a partner, she then established E-Z Recycling. The partners soon expanded the business, taking in aluminum, glass, newsprint, cardboard, grease, and oil. Assisted by two helpers, they collected the materials, baled cardboard, and cleaned plastic milk jugs. They made the project work!

In 1982, E-Z was sold to WINR, where Ms. Zantow now serves as volunteer manager. Baraboo, Sauk City, Prairie du Sac, and other communities are served by this regional endeavor.

Program Description

Today, the nonprofit company receives recyclable materials from

- Two mandatory, curbside, source-separation programs, in which there is 95 percent participation.
- Two towns with voluntary, curbside pickup. Recycled materials from the towns are delivered to WINR.
- Five drop-off satellite centers, which are staffed twice a week. The recyclables are sorted and put into trailers. Then the trailers are hauled to WINR to be processed and marketed.
- Two Dane County town garbage haulers, who bring recovered materials to WINR.

Each participating town is represented on a governing Board of Directors that oversees the operation. Six people are on the payroll; 35 people are volunteers, working six at a time. The Wisconsin Department of Natural Resources helps the program by developing educational materials. And in 1985, Sauk County gave a grant to the nonprofit, independent company.

WINR recycled over 12,000 tons of material in 1988. This is more than 200 tons above the recycling figures for 1987. In the mandatory collection programs, over 30 percent of all household, commercial, and industrial recyclable materials are being recycled.

What Makes Sauk County's Program Unique?

This privately operated, nonprofit enterprise is recycling a lot of material. And the program relies mostly on volunteers—primarily retired friends in the community.

The company does not pay for any recovered materials. The citizens of Sauk County do not expect to be paid. Furthermore, there is no charge for leaving recyclables. In the future, however, a small tipping fee may be established.

WINR is about to embark on a unique, new project to help local drought-stricken farmers. Working closely with the University of Wisconsin and the Extension Service, the company will shred newsprint for use as animal bedding in barns. The university is designing a shredder/baler unit for this purpose. Shredded and baled newspaper will be picked up by farmers, free of charge. To enhance this and its other operations, the recycling enterprise is moving to larger quarters.

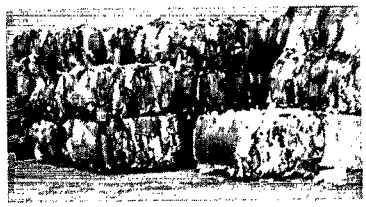
Obstacles Overcome

Two of the company's most serious obstacles have been public apathy and low market prices. To overcome apathy, educational programs are presented to schools and civic groups. This seems to work well in Wisconsin small towns and rural areas, where people are easily informed about the problems caused by excessive waste and want to be good neighbors. Finding new markets, on the other hand, takes a lot of hard work!

Program Contact

For further information about Sauk County's program, contact Mildred Zantow at (608) 643-2274 or write to

Mildred Zantow
Wisconsin Intercounty Nonprofit Recycling Company, Inc.
S7691 U.S. Highway 12
North Freedom, WI 53591



Milly Zantow confidently states, "Recycling is the only way to go in the future. There's just no alternative."

Seattle, Washington

Type of Program

Curbside collection and drop-off centers.

Community Overview

A city surrounded by the Cascade and Olympic mountain ranges and Puget Sound, Seattle is blessed with a myriad of recreational opportunities. Its port is also central to a large international shipping industry. Seattle is home to about 470,000 people.

Background

Seattle's citizens support many private recycling enterprises. About 25 percent of the city's waste stream has been diverted from landfills by these operations, a combination of volunteer group recycling drives and drop-off and buy-back centers.

Still, in 1988, the City Council established a goal of recycling 40 percent of all commercial and residential waste generated within the city by 1991. This goal will increase to 50 percent by 1993 and 60 percent by 1998. Seattle's residential solid waste is managed by a city utility and financed through an enterprise fund. Rates are the source of revenue. For years, Seattle managed all parts of the garbage system, from collection contracts to transfer stations to long-haul transfer to city owned and operated landfills. But by 1986, both of the city's landfills had to be closed because of explosive levels of methane gas migrating off site and their subsequent listing as Superfund sites. So the city had no choice but to contract with surrounding King County for landfill disposal. Disposal rates rose from $11 a ton to $31.50 a ton. In addition, closure of two old landfills would cost $76 million. These skyrocketing costs were the bane of the old-style solid waste management system, but a boon to a system which incorporates waste reduction, recycling, and composting. Thus, the ground was laid for Seattle to begin its plan for recycling. In addition, the city recently completed a comprehensive planning initiative which included a ten-volume environmental impact statement on waste reduction, recycling, and disposal alternatives.

The City Council established a goal of recycling 40 percent of all commercial and residential waste by 1991.

Program Description

Early in 1988, Seattle began residential curbside collection, servicing 147,000 households—all single-unit through four-unit residences in the city. Two different collection strategies are being tested. North of the ship canal, residents receive three stackable household containers for newspaper, mixed bottles and cans, and other mixed paper. The containers are picked up weekly. In the southern half of the city, residents mix all their recyclables in a 60- or 90-gallon container for monthly pickup.

Seattle has an active household hazardous waste collection program. There is a permanently staffed drop-site open 35 hours a week at one of its transfer stations. Drop-off is $4 for unlimited quantities. Also, the utility is sponsoring research into paint recycling.

The city now requires mandatory yard waste separation from household trash. Yard wastes represent 30 percent of the residential waste stream. The city will pick it up at the curb or alley for $2 a month and take it to a composting facility. Grass clippings, leaves, branches, brush, and sod are accepted. At transfer stations, the utility accepts clean yard waste in a program called Clean Green. The brush, grass, and leaves are transferred to a private composting facility for processing. The utility also funds a backyard composting education program run by Seattle Tilth, a local nonprofit organization of urban gardeners. In 1989 the program will be expanded to include "yard waste auditors," who will make house calls and distribute free composting bins.

The utility also provides recycling drop boxes at its two transfer stations, receiving all the traditional materials: from aluminum cans to cardboard to used motor oil to white goods to some not-so-traditional materials, such as mattresses.

What Makes Seattle's Program Unique?

Seattle's experiment with two different collection systems for recyclables should provide some interesting information and lessons for other cities. Both programs are voluntary. Citizens are asked to recycle through church and school drives, at drop-off sites, or buy-back centers—whatever works best for them. Or they can participate in the city recycling program.

In the south, they can recycle mixed paper, tin and aluminum cans, glass jars and bottles, cardboard, and aluminum foil with the curbside and alley program just by signing up. Participating households receive a sturdy plastic container on wheels that has a lid and is suitable for outdoor storage. A free calendar tells them which day to wheel their carts to the curb or alley for emptying.

The program, serving 82,000 households, is run by Recycle Seattle, a subsidiary of Rabanco, Inc., a large, locally owned waste management company. Recyclables are collected in old rear-loading trucks, then processed in a new recycling facility. This 80,000 square foot facility processes both commercial waste with a high percentage of recyclables and the commingled material collected from curbside. The city pays Recycle Seattle $47.75 a ton. Their contract does not require a minimum payment, but does have an agreement that the city and the company share risks of changes in the recycled materials market.

North of the ship canal, Recycle America, a subsidiary of Waste Management, Inc., serves 65,000 households. Three stacking containers are provided: one for glass containers and aluminum and tin cans; a second for mixed scrap paper; and a third for newspaper. Cardboard is set out next to the containers. A compartmentalized recycling truck collects the material. Recycle America separates the glass, aluminum, and tin with a combination of hand and mechanical sorting. Seattle pays the company $48.15 a ton, with a minimum payment of $2.8 million over the five-year contract. Recycle America absorbs total market risk.

Successful implementation of such a large program in such a short time has required both extensive promotion and responsive customer service representatives in the city's solid waste utility. The utility manages all promotional efforts, but carries them out in conjunction with the two contractors and a consultant.

Two all-city mailings kicked off the program. Customers were asked to sign up to receive a recycling container. Public service announcements were also run on television. Once the initial rush of sign-ups was over, there was a continuing effort to advertise and promote the program to encourage more participation. The utility staffs booths at street fairs, works crowds at festivals, and will soon have bus placards around the city. The utility regularly creates media events to get coverage, and Recycle America has developed a newsletter for the north end of the city. A Cash for Trash program, complete with its own costumed recycling superheroine called Major Recycler, has been started by the solid waste utility. Next year, it plans to begin neighborhood blitzes and a block leader program.

The two-zone program began in February 1988. By August, 2,600 tons of material were being collected each month, a significant amount of material for such a new program. By the end of October, 72.1 percent of the eligible households had signed up in the north end; 48.7 percent had signed up in the south end. The city-wide signup rate is 59 percent. Recycle Seattle in October averaged 29.2 pounds per eligible household. Recycle America averaged 45.8 pounds per eligible household. The city-wide average was 36.6 pounds per eligible household.

In addition to the two-zone recycling program, the city funds research and development of waste reduction and recycling techniques through a unique program called the Environmental Allowance Program. This allows both nonprofit organizations and for-profit firms to propose to the utility their best ideas. Projects currently in progress under the Environmental Allowance Program include these:

- Paper Fibres, Inc., collects mixed wastepaper from small businesses and apartment buildings.
- Washington Energy Extension Service has developed dial tapes, slide shows and information tapes on waste reduction.
- King County Nurses Association will educate the community on the hazards and proper disposal of disposable diapers.
- R.W. Beck will do waste reduction audits for fifty businesses and educate other commercial generators at waste reduction workshops.

A new six-month pilot plastic recycling program is under way in Seattle as well. Seven collection routes serving 4,500 households participate. People not on these routes can take their rinsed and flattened plastics to one of four locations: two stores and two transfer stations.

The material will be purchased by a Thai plastic company. It will be shipped to Thailand where it will be recycled into new products or sold as a raw material to other Asian markets.

Obstacles Overcome

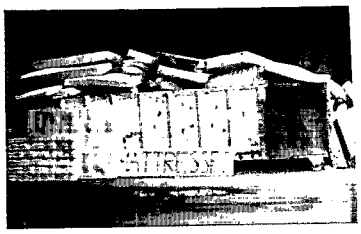
Seattle is very pleased with the results of its program so far. The city has had a few setbacks, too, from which it has learned:

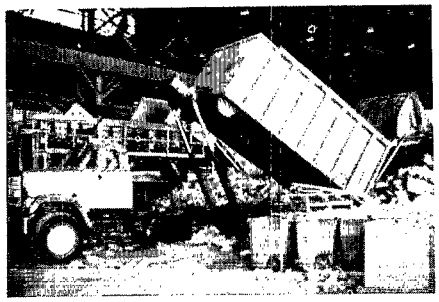
- The city fire code had to be changed to allow plastic garbage containers.
- The number of needed recycling trucks was underestimated at nine; eighteen will soon be utilized.
- The processing facility was not yet operational at the time collection began. Recycle America began its processing operation in an open parking lot!
- Customer service had to be upgraded to respond to over 10,000 calls a month. Because the staff wasn't available, about half of these calls were lost during start-up operations.
- Signing up for service turned out to be a problem. Seattle might not require sign-ups if they had to begin again. The city might just supply containers to every eligible household.

Program Contact

For further information about Seattle's program, contact Timothy Croll at (206) 684-7640 or write to

Timothy Croll
Program Development Director
Seattle Solid Waste Utility
710 2nd Avenue, Suite 505
Seattle, WA 98104





Tim Croll suggests that recycling be viewed as a solid waste management tool. "Be willing to fund recycling with the cost savings from the refuse side of the operation, and structure garbage rates to provide an incentive for recycling."

University City, Missouri

Type of Program

Leaf collection and composting.

Community Overview

University City, outside of St. Louis, is a middle-class community with an abundance of leaf-bearing trees. The population of University City is about 43,000.

Background

For many years, University City had been collecting leaves raked to the gutter line by residents. In the late 1960s, when leaf burning was banned, the city took the leaves to a landfill. By 1970, a refuse transfer station started operating, reducing travel costs to the landfill. Soon, however, landfill disposal costs began to rise.

The city, as part of its effort to reduce landfill costs, began to recycle newspaper and metals. When it was discovered that leaves represented over 15 percent of University City's annual waste stream, leaves became the next target for waste reduction.

Program Description

The University City leaf composting program began in 1983 on less than an acre of unimproved park land. Using city collection equipment, approximately 20 truck and sweeper loads are brought in daily for two months in the fall.

Now University City collects approximately 9,200 cubic yards of mulched leaves annually with the help of vacuum loaders and street sweepers. This material is turned several times during the winter and early spring, utilizing an aerator/pulverizer which further mulches the material. Total processing time is approximately six months, after which the compost is reduced to 20 to 25 percent of the volume originally deposited. The estimated weight is between 1,000 and 1,200 pounds per cubic yard.

University City currently sells the finished leaf compost for $4 a cubic yard, returning at least a portion of the costs of pro-

University City collects approximately 9,200 cubic yards of mulched leaves annually.

cessing and loading into the purchaser's trucks or trailers. Users include tree and plant nurseries, landscaping companies, and many individuals and companies using one or two truckloads.

University City Leaf Composting Cost Analysis

Landfill Cost Avoidance	**$39,250**
Land Haul Cost Avoidance	**41,559**
Revenue from Sale of Mulch	**4,592**
Cost of Processing (Estimate)	**(4,281)**
Net Annual Value Gained	**$81,120**

What Makes University City's Program Unique?

University City has turned 15 percent of its waste stream into a useful commodity. This is particularly unique in an area where other community programs have fallen victim to costs and labor needs of collection, coupled with difficulties of handling and disposal.

Stock piles of leaf compost are provided for the use of residents for their lawns and gardens at no cost. For commercial use, the charge of $4 per cubic yard includes loading trucks—a real bargain. One landscape company worked three or four inches of compost into several acres in which young trees were planted. The company had done this several years before and experienced phenomenal growth. It was also used to heal or protect the balls on larger tree stock. Another landscaper added sand and leaf compost to her own lawn, where she is doing an experimental project with a very deep-rooted grass that should be resistant to drought and cold. Although it had been too wet to plant the grass seed, she was amazed to find no washing of the relatively steep lawn after heavy rains.

A new shopping center used leaf compost in all of its outside planting beds, working it into fill soil. Here wood chips were used for top dressing. Although the leaf compost could have been used for the same purpose, it would decompose more rapidly than the wood chips. The city park department used leaf compost to improve the soil in its planting beds as well.

The city continues to promote the value of compost to add or replace organic matter to the soil. Compost is useful to

- Help plants utilize available nutrients.
- Act as a storehouse of water, preventing soil erosion.
- Loosen heavy clay, allowing plants to breathe.
- Serve as top dressing to reduce compaction, lessen maintenance, and insulate roots.
- Upgrade poor soil.

Furthermore, leaf compost is cheap! University City's method of turning leaves in minimum space and marketing compost through local landscape and nursery companies also adds to its uniqueness.

Obstacles Overcome

University City has convinced residents and businesses to use compost! However, the larger market has not been fully developed. The city is working to avoid carry-over of compost from one year to the next. Current inventory is about 1,300 cubic yards.

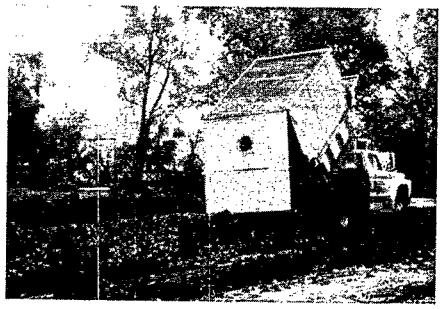
Currently, smaller quantity customers means higher costs. University City would welcome a single purchaser for most or all of its compost.

The city also hopes to improve a loading and delivery system to its customers. While a large-volume trailer would serve this purpose, the expense cannot be justified at this time. University City is experimenting also with a chemical spray that can reduce odors produced after compost turns anaerobic, without harming the bacteria in the mulch.

Program Contact

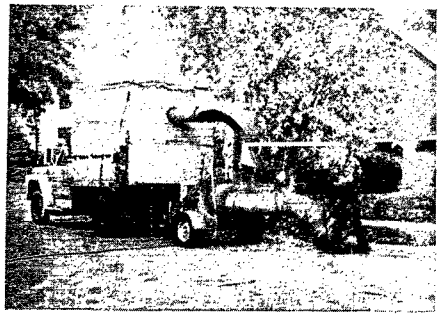
For further information about University City's program, contact Allan B. Dieckgraefe, at (314) 862-6767 ext. 260 or write to

Allan B. Dieckgraefe, Director
Department of Public Works
6801 Delmar Boulevard
University City, MO 63130



2.

When the 17-cubic-yard box is filled, the truck disconnects from the loader and hauls the shredded leaves to a processing area on unimproved park land. The truck then returns to a route, where it is reconnected to the original or another loader.

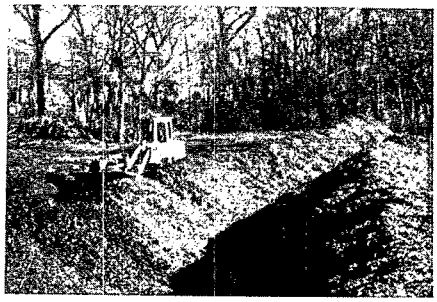


1.

This shows a vacuum loader towed behind a truck, picking up leaves from the street gutter. The loader blows leaves through a flexible connection into a box mounted on the towing vehicle.

3.

An aerator/pulverizer mounted on a wheel loader further shreds and piles leaves in the processing area. The machine uses 3-foot-diameter paddles on a horizontal shaft 7′6″ long.



4.

Windrows are created, 8 to 10 feet high and 20 to 35 feet at the base. The piles are turned periodically to restore oxygen for bacterial composting action.

5.

This shows that after approximately 6 months of processing there is a dark, rich, peat moss-like material immediately below the surface ready for use as a soil amendment or stabilization.

Allan Dieckgraefe, Director of University City's recycling program, believes there's a strong need for compost to prevent the loss of topsoil. "In this age of high tech, it's comforting to know that a low-tech process, such as composting, can help solve a critical problem."

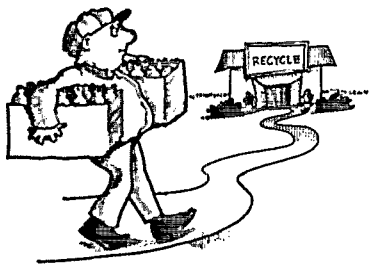
Wellesley, Massachusetts

Type of Program

Voluntary, source-separation drop-off recycling center.

Community Overview

Wellesley is a town of 27,000 people, located about 25 minutes from downtown Boston. It is primarily a suburban residential community.



Net recycling benefits for 1988 were about $186,000.

Background

Wellesley's recycling program was started in 1971 by local environmentalists and the Department of Public Works when the town's incinerator failed to meet air emission standards. Unlike many of the earlier recycling centers around the nation, Wellesley's is still in business and is thriving. Located at the town Recycling and Disposal Center, the operation has grown from collecting materials in 55-gallon drums to using 40-cubic-yard, open-top, transfer-haul containers, plus horizontal and pit balers. It is now run by the town public works department and consists of a recycling center, transfer station, and yard waste composting site.

Wellesley has never had curbside garbage collection. Its residents—at least 83 percent of them—take their refuse to the Recycling and Disposal Center (RDF). The Wellesley RDF is free only to residents. Wellesley hauls its refuse to a private sanitary landfill 25 miles away, which charges more than $25 a ton in tipping fees.

Program Description

Town residents bring both separated recyclables and regular garbage to the town recycling and disposal facility. There are drop boxes there clearly marked for glass, newspaper, corrugated cardboard, mixed paper, tin cans, aluminum, batteries, nonferrous and ferrous metal, used oil, plastic bottles, yard waste, firewood, and tires. There is also a reusable items corner for the exchange of books, games, toys, appliances, furniture, and clothes. In addition, there is an area for composting leaves, grass, and other yard wastes. The RDF is a redemption center under the Massachusetts Bottle Bill as well.

About 90 percent of Wellesley residents who use the RDF also recycle. Newspaper, glass, cardboard, ferrous metal, and aluminum are the primary materials recycled. In addition, cardboard, metals, glass, and returnable containers are taken from the tipping floor of the transfer station, which is used for residential and commercial refuse.

The following materials are collected and sorted at the Wellesley recycling and disposal facility:

PAPER

- Newspaper
- Cardboard and corrugated
- Brown paper bags
- Mixed paper—magazines, junk mail, etc.

GLASS

- Clear
- Green
- Brown

CANS

- Aluminum
- Steel, bimetal

PLASTIC

- High density polyethylene containers

OIL

- Engine

TIRES

BATTERIES

- Automotive
- Wet cells

METALS

- Iron
- Steel
- Aluminum
- Brass
- Copper

WOOD

- Logs provided free for firewood
- Kindling free to townspeople
- Wood chips—for mulch or compost

LEAVES, GRASS & YARD WASTES

- Composted—available free to town residents; excess sold or donated

RETURNABLE BOTTLES & CANS

- All types—five-cent refund and two-cent handling fees go to the town

BOOKS

- People can take and leave books free at the "Book Exchange"

CLOTHING, SMALL EQUIPMENT, ETC.

- Donated to Salvation Army or Goodwill Industries (an attended trailer at recycling center)

MISCELLANEOUS REUSABLE ITEMS—"TAKE IT OR LEAVE IT" AREA

- Usable furniture, equipment, and miscellaneous articles are left by residents and taken free by other residents

In 1987, more than 16 percent of the 17,677 tons of waste processed at the RDF was recycled. Figures for 1988 show that 3,047 tons, or 19 percent, of the total residential, commercial, and municipal solid wastes are recycled. This is 24 percent of residential trash. Recycling net benefits were about $186,000 for 1988. This includes sales of recyclables, avoided hauling and landfill costs, and recycling expenses.

What Makes Wellesley's Program Unique?

The Wellesley drop-off center evolved from a town incinerator site to a multi-purpose recycling center. The center is proud of its park and social-gathering setting. Picnic tables, well-maintained lawns, trees, flowers, and a circular drive contribute to the site's popularity for Girl Scout cookie sales as well as political glad-handing.

The center is also unique in its wide acceptance by townspeople and its dedicated staff. Further, the Wellesley recycling center sponsors a recycling education program aimed at all Wellesley residents, including a curriculum for third graders in Wellesley public and private schools. "Recycle. Join the Team" is its theme. The center also actively promotes other recycling in the community. For instance, it helps spread the word about community-sponsored rummage sales.

Obstacles Overcome

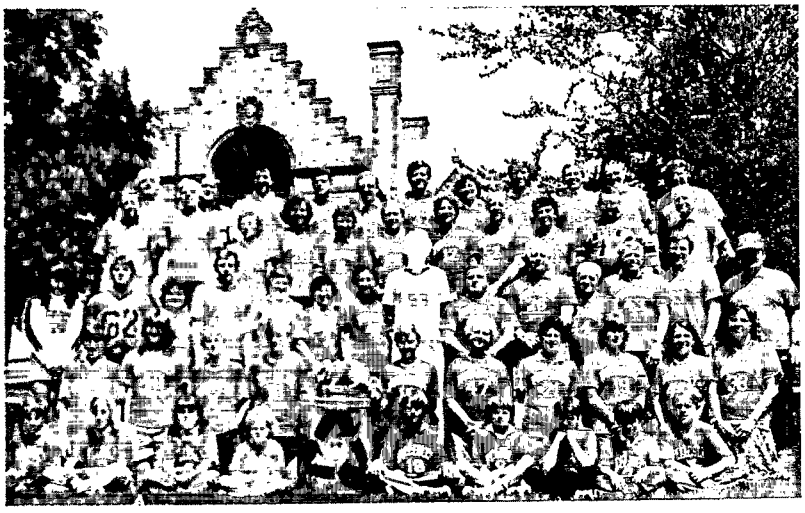
At the recycling center, a wide range of services can be found: a redemption center for bottles, donated as a source of revenue for the center; a yard waste composting operation; and Goodwill and Salvation Army depots, with an attendant in the Goodwill trailer. The book exchange is also a popular hangout for residents!

The Wellesley recycling program works, and it has always worked! Nonetheless, there are the complaints that recycling takes too much time and that separate storage bins take up too much space in the home. To overcome these complaints, the center relies on its information and education program. Not only does the public works staff go to the schools, they provide community presentations and promote recycling regularly.

Program Contact

For further information about Wellesley's program, contact Maurice "Pat" Berdan at (617) 235-7600 or write to

M.R. Berdan, Director
Wellesley Department of Public Works
455 Worcester Street
P.O. Box 81364
Wellesley, MA 02181



Recycle. Join the Team!

Pat Berdan offers this advice: "Wellesley's success is due to a combination of environmental awareness of the townspeople, their desire to conserve scarce resources, and their recognition that the town benefits financially by its recycling operation."

Wilton, New Hampshire

Type of Program

Mandatory, material separation at drop-off center.

Community Overview

Wilton and the towns of Greenfield, Greenville, Lyndeborough, Mason, and Temple, New Hampshire, built the Wilton Recycling Center in 1979. It serves nearly 80 percent of the 9,000 residents of this rural area. The center requires residents to drop off their separated trash free of charge. The residents' other option is to pay for curbside pickup.

Background

A stone quarry in Wilton evolved from an old swimming hole to an unpleasant dump. By 1976, the town acknowledged that something needed to be done. With its neighboring towns, Wilton cleaned up the dump and created the Recycling Center on its site.

The six towns agreed to share expenses as well as revenues, based on population. They also passed ordinances in 1978 requiring the separation of waste prior to its being left at the center. Most of the residents were already dropping off their trash.

Opened in 1979, the Recycling Center cost about $360,000 to construct. The four-acre site is set up with stations receiving a variety of recyclables. The facility recycles 45 percent of the waste, burns 43 percent in an on-site incinerator, and landfills the remaining 12 percent, including ash.

Program Description

The Recycling Center accepts all household wastes. Cans, glass, paper, plastic and metal are recycled. Trash categorized for incinerating, landfilling, and composting must be kept separate as well. There is a charge to dispose of some items, such as tires and demolition waste. And compost and wood chips prepared at the center are offered for sale.

Workers at the "low-tech" center compress and bale papers and cans. Glass is crushed, and plastic jugs are ground up. Industries in the area purchase most of these materials.

The Wilton district spends only about $36 a ton to dispose of its waste. And in 1986, the district sold $26,000 worth of recycled material.

The regional center recycles 45 percent of the waste it receives.

Information

For more information about recycling and for additional copies of *Recycling Works!*, call the EPA Solid Waste Hotline at 1-800-424-9346. In D.C., call 382-3000.

Following is a list of state recycling offices:

ALABAMA
Department of Environmental Management
Solid Waste Division
1715 Congressman Wm. Dickinson Drive
Montgomery, AL 36130
(205) 271-7700

ALASKA
Department of Environmental Conservation
Solid Waste Program
P.O. Box 0
Juneau, AK 99811-1800
(907) 465-2671

ARIZONA
Department of Environmental Quality - O.W.P.
Waste Planning Section, 4th Floor
Phoenix, AZ 85004
(602) 257-2317

ARKANSAS
Department of Pollution Control and Ecology
Solid Waste Division
8001 National Drive
Little Rock, AK 72219
(501) 562-7444

CALIFORNIA
Recycling Division
Department of Conservation
819 19th Street
Sacramento, CA 95814
(916) 323-3743

COLORADO
Department of Health
4210 E. 11th Avenue
Denver, CO 80220
(303) 320-4830

CONNECTICUT
Recycling Program
Department of Environmental Protection
Hartford, CT 06106
(203) 566-8722

DELAWARE
Department of Natural Resources and Environmental Control
89 Kings Highway
P.O. Box 1401
Dover, DE 19903
(302) 736-4794

DISTRICT OF COLUMBIA
Public Space and Maintenance Administration
4701 Shepard Parkway, S.W.
Washington, DC 20032
(202) 767-8512

FLORIDA
Department of Environmental Regulation
2600 Blairstone Road
Tallahassee, FL 32201
(904) 488-0300

GEORGIA
Department of Community Affiars
40 Marietta St., N.W., 8th Floor
Atlanta, GA 30303
(404) 656-3898

HAWAII
Litter Control Office
Department of Health
205 Koula Street
Honolulu, HI 96813
(808) 548-3400

IDAHO
Department of Environmental Quality
Hazardous Materials Bureau
450 W. State Street
Boise, ID 83720
(208) 334-5879

ILLINOIS
Illinois EPA
Land Pollution Control Division
2200 Churchill Road
P.O. Box 19276
Springfield, IL 62706
(217) 782-6761

INDIANA
Office of Solid and Hazardous Waste Management
Department of Environmental Management
105 S. Meridian Street
Indianapolis, IN 46225
(317) 232-8883

IOWA
Department of Natural Resources
Waste Management Division
Wallace State Office Building
Des Moines, IA 50319
(515) 281-8176

KANSAS
Bureau of Waste Management
Department of Health and Environment
Topeka, KS 66620
(913) 296-1594

KENTUCKY
Resources Management Branch
Division of Waste Management
18 Reilly Road
Frankfort, KY 40601
(502) 564-6716

LOUISIANA
Department of Environmental Quality
P.O. Box 44307
Baton Rouge, LA 70804
(504) 342-1216

MAINE
Office of Waste Reduction and Recycling
Department of Economic and Community Development
State House Station #130
Augusta, ME 04333
(207) 289-2111

MARYLAND
Department of Environment
Hazardous and Solid Waste Administration
2500 Broening Highway
Building 40
Baltimore, MD 21224
(301) 631-3343

MASSACHUSETTS
Division of Solid Waste Management
D.E.Q.E.
1 Winter Street, 4th Floor
Boston, MA 02108
(617) 292-5962

MICHIGAN
Waste Management Division
Department of Natural Resources
P.O. Box 30028
Lansing, MI 48909
(517) 373-0540

MINNESOTA
Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155
(612) 296-6300

MISSISSIPPI
Non-Hazardous Waste Section
Bureau of Pollution Control
Department of Natural Resources
P.O. Box 10385
Jackson, MS 39209
(601) 961-5047

MISSOURI
Department of Natural Resources
P.O. Box 176
Jefferson City, MO 65102
(314) 751-3176

MONTANA
Solid Waste Program
Department of Health and Environmental Science
Cogswell Building, Room B201
Helena, MT 59620
(406) 444-2821

NEBRASKA
Litter Reduction and Recycling Programs
Department of Environmental Control
P.O. Box 98922
Lincoln, NE 68509
(402) 471-4210

NEVADA
Energy Extension Service
Office of Community Service
1100 S. Williams Street
Carson City, NV 89710
(702) 885-4420

NEW HAMPSHIRE
Waste Management Division
Department of Environmental Services
6 Hazen Drive
Concord, NH 03301
(603) 271-2900

NEW JERSEY
Office of Recycling
Department of Environmental Protection
CN 414
401 E. State Street
Trenton, NJ 08625
(609) 292-0331

NEW MEXICO
Solid Waste Section
Environmental Improvement Division
1190 St. Francis Drive
Sante Fe, NM 87503
(505) 457-2780

NEW YORK
Bureau of Waste Reduction and Recycling
Department of Environmental Conservation
50 Wolf Road, Room 208
Albany, NY 12233
(518) 457-7337

NORTH CAROLINA
Solid Waste Management Branch
Department of Human Resources
P.O. Box 2091
Raleigh, NC 27602
(919) 733-0692

NORTH DAKOTA
Division of Waste Management
Department of Health
1200 Missouri Avenue, Room 302
Box 5520
Bismark, ND 58502-5520
(701) 224-2366

OHIO
Division of Litter Prevention and Recycling
Ohio EPA
Fountain Square Building, E-1
Columbus, OH 43224
(614) 265-7061

OKLAHOMA
Solid Waste Division
Department of Health
1000 N.E. 10th Street
Oklahoma City, OK 73152
(405) 271-7159

OREGON
Department of Environmental Quality
811 S.W. Sixth
Portland, OR 97204
(503) 229-5913

PENNSYLVANIA
Waste Reduction and Recycling Section
Division of Waste Minimization and Planning
Department of Environmental Resources
P.O. Box 2063
Harrisburg, PA 17120
(717) 787-7382

RHODE ISLAND
Office of Environmental Coordination
Department of Environmental Management
83 Park Street
Providence, RI 02903
(401) 277-3434

SOUTH CAROLINA
Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201
(803) 734-5200

SOUTH DAKOTA
Energy Office
217-1/2 West Missouri
Pierre, SD 57501
(605) 773-3603

TENNESSEE
Department of Public Health
Division of Solid Waste Management
Customs House, 4th Floor
701 Broadway
Nashville TN 37219-5403
(615) 741-3424

TEXAS
Division of Solid Waste Management
Department of Health
1100 W. 49th Street
Austin TX 78756
(512) 458-7271

UTAH
Bureau of Solid and Hazardous Waste
Department of Environmental Health
P.O. Box 16690
Salt Lake City, UT 84116-0690
(801) 538-6170

VERMONT
Agency of National Resources
103 S. Main Street, West Building
Waterbury, VT 05676
(802) 244-8702

VIRGINIA
Department of Waste Management
Division of Litter Control and Recycling
11th Floor, Monroe Bulding
101 N. 14th Street
Richmond, VA 23219
1-800-KeepIt

WEST VIRGINIA
Department of Natural Resources
Conservation, Education, and Litter Control
1800 Washington Street E.
Charleston, WV 25305
(304) 348-3370

WASHINGTON
Department of Ecology
Mail Stop PV-11
Olympia, WA 95804
1-800-Recycle

WISCONSIN
Department of Natural Resources
P.O. Box 7921
Madison, WI 53707
(608) 266-5741

WYOMING
Solid Waste Management Program
Department of Environmental Quality
Herschler Building
122 W. 25th Street
Cheyenne, WY 82002
(307) 777-7752

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